

Interaction between Health Institutions in Knowledge and Medical Practices in South Kordofan / Nuba Mountains

A thesis submitted to the University of Khartoum for the degree of Master of Science in Sociology and Social Anthropology.

by

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INTERACTION BETWEEN HEALTH INSTITUTIONS IN KNOWLEDGE
AND MEDICAL PRACTICES IN SOUTH KORDOFAN / NUBA MOUNTAINS

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Abstract

This research thesis addresses the challenges confronting the establishment of stable and sufficient health care provision in Heiban Locality in South Kordofan / Nuba Mountains in the aftermath (2002–2011) of the protracted period of war (1985–2002). It investigates the interaction of actors involved in health care provision during and after war, and asks whether this interaction and the subsequent functioning of health institutions have changed into non-violent health governance for the benefit of the general population's well-being. The research, therefore, traces how health knowledge and medical practices were negotiated between health practitioners and other actors, and how these health practitioners thus related to different health institutions.

To analyse the interaction and interrelationships between health institutions in the region and beyond, the following research questions were raised: How can health institutions be identified? What health institutions exist? How do they interact in terms of health knowledge and medical practices? What are the dynamics of contestation over resources affecting the interaction of these health institutions? These questions were addressed by means of qualitative research methods, namely narrative interviews, participant observation and specific ethnographic case studies.

It was found that several organizations and individuals were involved in health governance in the area. Their interaction with health practitioners involved multiple and diverse health institutions that differed in terms of social organization, knowledge and practices, and spatial reach. While this reflected cultural diversity among the practitioners and the population they worked, plurality was not equitably recognised and not institutionalised in health governance. Having limited resources and access during complex emergencies, health governance could have benefitted from such institutionalisation.

Individual health practitioners related to these multiple and diverse health institutions through dynamic processes of interaction that involved the confirmation, crossing and making of boundaries between them and other actors. However, these processes failed to move in a significant and sustainable way beyond violent contestation over resources and the complex emergencies that developed during war. Because of the continuing dominance of military institutions and militarised political contestation, the ad hoc character of health care provision under emergency conditions was further institutionalised, and thereby the emergencies themselves. Health governance that emerged during 'wartime' established health care provision through temporary solutions that were attempted to be stabilised, instead of finding strategic and long-term stable solutions. They were also marked by violent interaction, such as antagonistic struggles over resources and politicised access to public services. By continuing this basic character of interaction, health care providers also reproduced the emergencies during 'peacetime' and had, accordingly, to react to the emergencies, thereby entering a loop

or vicious circle from which they were unable to escape. War and peace were thus not clearly distinct periods, they blended into each other as continuous, institutionalised emergencies.

The challenges identified by this thesis indicate the difficulties of health care provision in Sudan in general, and in war and/or post-war periods in particular. The researcher maintains that equitable health care, as an essential social service, is a prerequisite for future societal integration and peaceful co-existence.

The researcher recommends establishing non-violent principles to pervade health governance and resource allocation, since only then can health care provision contribute to peacebuilding.

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Chapter 1: Introduction

Sudan in general and South Kordofan (Nuba Mountains) in particular have multiple health care systems, which are related to belief systems, community experiences with illness and biomedicine; multiple health care systems shaped by history, war and accordingly unstable polity and policies (Elnagar 2002 [In Arabic]; Komey 2005). At the same time, health care systems in the Nuba Mountains, where this research has been conducted, have experienced globalisation through exposure to biomedical technology and subsequent practices in health institutions. In this complex situation, they oscillate between tradition and modernity, and the institutionalisation of health care leads to plural and diverse health care systems and providers.

The Nuba Mountains are among the most war-affected areas in Sudan. The Civil War period in South Kordofan (Nuba Mountains) started in 1985. In 2002, a cease-fire agreement finally stopped the war officially, and a Joint Military Commission monitored the agreement. The Government of Sudan (GoS) and the Sudanese People's Liberation Army and Movement (SPLA/M) signed the Comprehensive Peace Agreement (CPA) in 2005, in terms of which the Nuba Mountains were defined as one of the Three Areas, together with Blue Nile and Abyei, later renamed 'Chosen Areas'. The Nuba Mountains were supposed to hold popular consultations about their future status in 2011. Since 2005, a slow process of integration between SPLA- and government-held areas has been taking place, with the establishment of Joint Integrated Units (JIU). However, hostilities resumed in June 2011.

This research addresses the war and post-war periods from 1985 to May 2011. It focuses on health practitioners, particularly nurses in Heiban locality, which includes peri-urban Heiban and Kauda and the surrounding villages. This area is affected by the separation of rule between the Government of Sudan (GoS) and the SPLA during the war. For example, Heiban town was a government garrison during that period, access to and leaving of which was regulated by the armed forces. At the same time, the people of Kubang, which is a village a few kilometres west of Heiban, had moved to settlements in the mountains, which were dominated by SPLA troops.

This situation shaped differences in administration and institutions, which resulted in divergent practices, health education and different quality and quantity of health practitioners, both during and after the war. These differences are the main field observations of this study.

Statement of the problem

Sociological studies on health in Sudan tend to consider health institutions as a dichotomy of the traditional and the modern, and positing ‘local’ medicine in contrast to biomedicine (Taj al-Sir 2000 [in Arabic]; Elnagar 2002 [in Arabic]; Gadh Eldam 2003). Still, all these studies recognise that Sudan has multiple medical systems, and the perceived contrast has spurred questions: Do communities prefer traditional medicine or biomedical services to address their health issues? What are the factors behind their decisions? Are they swayed by economic or cultural factors?

Medical anthropology has contributed to debates over the traditional/modern dichotomy by studying medical knowledge and medical practices in both traditional and biomedical systems. Several medical anthropologists discussed the plurality of medical knowledge and its institutionalisation, which is affected by and affect social situations in which medical knowledge and practices are obtained (Nichter & Lock 2002; Johannessen & Lazar 2006). In the wake of these discussions, institutionalisation can be understood as the embodiment of knowledge and practices adopted through processes of interaction between actors/health practitioners in multiple medical systems, triggering several questions: How do health institutions formalise this embodiment? How do actors of different health institutions interact in their respective spheres of medical knowledge and practices?

Health institutions can be identified and distinguished from each other by their boundaries, as well as the social, economic and political conditions in which they are embedded. On the basis of this understanding, this research studies nurses as one of the actors who adopted medical knowledge and practises from many health institutions. The research traces their interaction in learning, acquiring tools and working with other health practitioners in plural medical systems.

The research problem is guiding the analysis of interaction between nurses and divergent health institutions in medical knowledge systems and practices under post-war conditions, and the discussion about the challenges of building a system of public health services under such conditions.

This research problem is approached by a qualitative study about interaction between nurses/health practitioners and their respective health institutions which are different in scope (micro-macro), and in the level of organisation and formalisation of reproduction (traditional-modern, formal-informal). This approach comprises multiple actors such as community-based shamans, the state administration (central hospital in Heiban), drugs companies, NGOs (Nuba Relief, Rehabilitation and Development Organisation), and INGOs (Norwegian Church Aid). Further differentiation is between urban and rural social spaces.

The focus of the analysis is on the transformation from war to the post-war period with specific attention to the dynamic contexts of violent conflicts, non-violent resource contestation and peace-building in the Heiban area.

Study Area

This thesis uses two names for the region as mentioned in the title, South Kordofan and Nuba Mountains, because the social, geographic and administrative site is contested. The demarcation of the area as South Kordofan or Nuba Mountains is ambiguous, expressed through these two names. ‘South Kordofan’ is, in a federal state, an administrative unit of the national government system, located in the geographical centre of Sudan. After 2005, it included parts of former West Kordofan, namely the Lagawa district; Western Kordofan was reinstated in 2013. ‘Nuba Mountains’ refers to the historical demarcation of a region between latitudes 9-13° N and longitudes 27-32.25° E, with a total area of 139,669 km² (Battahani 1998: 99).

Guma Kunda Komey chose in his PhD thesis as his study region ‘Nuba Mountains’, which is “greater than South Kordofan State” and “a comprehensive territory”, both geo-administrative and ethno-political (Komey 2005: 181). Hamid al-Bashir Ibrahim, although ultimately understanding both terms neutrally, indicated certain “socio-political implications and ramifications” of the term ‘Nuba Mountains’, while he saw ‘South Kordofan’ to be “value free” (Ibrahim n.d.: 8). In any case, there exist tendencies to discuss ‘South Kordofan’ as an administrative unit of the central government against ‘Nuba Mountains’ as a region of ‘the Nuba’.

Naming the study area South Kordofan/Nuba Mountains derives from the unstable administration policy throughout its history. During Turkish rule, not much attention was paid to change on the administrative level, and the Turkish administration relied on tribal leaders who obeyed their rules. When Sudan was divided into provinces under the British regime, the Nuba Mountains were initially a province, but became integrated into Kordofan province in 1929 when the capital changed to El-Obeid (Kafi 1999: 73 [in Arabic]).

With the continuation of colonial policies, the instability of the national state administration persisted. For instance, Numairy’s regime divided Kordofan in 1974 into two directorates: North Kordofan with the capital El-Obeid and South Kordofan, where the capital was Kadugli. The latter directorate was divided into four areas: north, east, south and west. In 1994, the government adopted a federal system of governance that divided Kordofan into three states, namely North Kordofan, South Kordofan and West Kordofan (GoS 1995 [in Arabic]). Under this system, South Kordofan had five provinces. In 1998, the provinces were renamed as localities, whereby South Kordofan had 30 localities in rural and urban areas (GoS 1998 [in Arabic]).

On the other side of the wartime division, the Sudanese People’s Liberation Army (SPLA) had established different administrative policies since 1985. These areas were known as SPLA-controlled areas, whose extent was not stable and depended on the specific military situation at any point in time. In the formal structure of the local SPLA administration the county constituted the highest level, followed by two lower tiers: *payam* and *boma*. A county had a minimum population of 100,000 citizens

(GoSS 2005: 14), while a *payam* is formed for each 25,000 citizens by an unspecified number of *boma*. As lowest tier with a minimum of 5,000 citizens, a *boma* is headed by a local chief and includes one or more villages with approximately 1,000 tax-paying families each (Abdel A'al 2010: 104).

The Ceasefire Agreement of 2002 defined South Kordofan as the Nuba Mountains plus Lagawa district. This agreement was followed by the Comprehensive Peace Agreement (CPA) in 2005. In the implementation of both agreements, West Kordofan was dissolved and integrated in North and South Kordofan, the latter receiving the southern part. South Kordofan had then eight localities.

These unstable administration policies had a negative impact on service distribution related to area size and population, which will be discussed in more detail in the following sections of the introduction and in chapter 4.

Another key feature is the social structure of the population, including the ethnographic background of the term 'Nuba'. In the 1956 census, the category 'Nuba' represented 6% (572,935) of the total population of Sudan, while estimations after 2000 put it at 5%. Before the Ceasefire Agreement of 2002, the UN estimated 760,000 Nuba people to be living in government-controlled areas, and 370,000 in SPLA/M-controlled areas, and at least one million Nuba were said to be scattered throughout Sudan. Komey also cited the censuses of 1978 (770,000), 1983 (914,453), and 1993 (1,703,560) and estimated in 2005 an overall Nuba population between 1.6 and 2 million (Komey 2005: 185), while post-war estimates fluctuate between 1,158,000 and 2,400,000 persons.

In spite of their dispersion throughout Sudan and the world, the 'Nuba' can still be regarded as the majority population of the study area. Other groups of the region are those who immigrated about 200 years ago, the Missiriyya and the Baqqāra, or more recent immigrants such as the Fellata from West Africa and the Zaghawa from Western Sudan; they are often posited in a dichotomy with the Nuba. Other labels accompany this dichotomy, for instance the 'Nuba' as Black African animist and Christian farmers, and the Baqqāra as Arab Muslim pastoralists. Although the classic monograph of Siegfried Nadel about 'the Nuba' (Nadel 1947) established a strong sense of this notion in social studies, many recent studies discussed the issue of ethnicity in the region in a more differentiated manner, considering both historical constants and changes (Ibrahim n.d.; Suliman 1997; Battahani 1998; Saavedra 1998; Manger 2007; Ille 2015).

Justification

Several studies about war in South Kordofan/Nuba Mountains focused on the roots of the conflicts, such as cultural conflicts between ethnicities or conflicts over resources between pastoralists and sedentary farmers. Research about the post-war period was often interested in

administrative institutions in facilitating the process of integration between the two systems of the governing parties (NCP and SPLM).

Another approach was concerned more generally with processes of institutionalisation and the structural conditions of social peace on several levels. Social services for stable communities, in particular, depend on non-violent interaction of both private and public institutions. Therefore, details of structural conditions of social services and community practices for livelihood strategies are crucial for understanding the dynamics of disintegration and rehabilitation of the social fabric. Health care provision and its institutionalisation, as a basic condition of human well-being, illustrate many crucial aspects in this regard, but have not yet been systematically studied.

Objectives of the Study

The objectives of this study are to:

- Identify the existing health institutions and their social, economic and political underpinnings;
- Analyse the interaction in knowledge and medical practices between health institutions;
- Identify the challenges encountered in building public health services in pluralistic health care systems under post-war conditions, especially contestation over resources.

Research Questions of the Study

- What were and are the health institutions, both during the war and in the post-war period in the rural and the urban areas of the Heiban locality?
- How does interaction take place between these health institutions in knowledge and medical practices?
- What are the dynamics of resource contestation affecting the interaction between health institutions?
- What are the challenges that face the building of a public health care system?

Methodology

The methods and the research tools for situational analysis used in this research included participant observation, narrative interviews, visual documentation and review of documents.

The situational analysis was based on the interaction between the researcher and health practitioners concerning three aspects: (i) learning, (ii) getting tools, and (iii) work. ‘Learning’ means here the acquisition of knowledge – what is there to be done; ‘getting tools’ means the acquisition of skills and equipment – how and with what it is to be done; and ‘work’ means practice based on acquired knowledge and skills. Research and health practice was intertwined here; as the researcher documented and analysed health practices, she was reflective of the implications for her own learning, work and methodological tools of the research.

The investigation followed three lines of observation in three different settings or research locations. The first research site was a peace initiative for Heiban. The mission was to conduct a needs assessment of health services in Heiban. Through this, the researcher became acquainted with the area and the health situation both as a participant observer and a researcher in a team led by an academic and an activist from the area. The second prong of data collection was participation through voluntary work in Heiban’s rural hospital, where the researcher got acquainted with details of work processes and interaction between health practitioners. Thirdly, the researcher personally experienced several treatments and health practices when she contracted malaria.

Firstly, when this research endeavour was in the registration process, the researcher conducted fieldwork one week under the umbrella of a peace initiative by Heiban people (political leaders, intellectuals and the Heiban Association), with logistical support from the organisation *Justice Africa*, to assess the status of health services and needs in Heiban Locality.

This one-week fieldwork was mission done in an atmosphere of anticipation and high expectations of change after the election and popular consultations in 2011. However, the peace initiative was taken in an uncertain transitional period that could lead to stable peace or the resumption of war. The discussions between health practitioners, administrators and organisers of the Heiban Association went through all these scenarios, and the researcher observed that uncertainty shaped all the work processes and discussions during the research period. The challenge was to reposition the research during and after this fieldwork, as its purpose at that point was both to assess the needs for an intervention by an international organisation and to generate data for the master thesis. Although the research team leader facilitated the researcher’s positions by introducing her to health practitioners throughout the survey area as a researcher who will continue work after this mission for her university requirements, this was understood only by the health workers who had attended the peace initiative workshop.

The second opportunity was the researcher’s voluntary work in the Heiban Rural Hospital

for two months to use participatory observation in medical practice as a research tool. The challenge was to create a stable work situation for daily attendance and to convince the medical personnel to allow regular visits to the hospital. The work started with registration at the vaccination office, followed by assistance to a nurse in the registration of vaccinated children and in the registration of the age and weight of children in the nutrition office. After a month, the work shifted to the registration of patients requiring services from the laboratory. Here the activities also included conducting malaria tests as an assistant to the lab technicians.

The third opportunity was when the researcher contracted malaria and subjected to different treatment methods. She experienced the challenge of deciding between different treatment methods, and the difference between knowing a treatment method and actually trying the method in a situation of need.

Primary data

- Review of historical documents (archives) about the pre-war and war periods.
- A total of 80 narrative interviews with health practitioners, NGO staff, government officials, a community sample of their family, friends and neighbours, including questions about health practices during war, life stories and the post-war period. The interviews were done in Arabic and translated by the author unless stated otherwise.
- Three focus group discussions, one with nurses in Debbi area, one with Red Crescent volunteers, one with nurses in a medicine supply section.
- Descriptive ethnography: direct observations in short visits to two hospitals, 13 health units from a total of 39 health units, and 4 health centres from a total 7 health centres in Heiban Locality, plus participatory observation for two months in Heiban Health centre.

Secondary data

- Review of literature (general background, health-related studies of the area, medical anthropology).
- Supportive material from Kadugli and Khartoum (organisations, Ministry of Health) and Secretary of Health in Kauda.

Conceptual Framework

In this section, the researcher discusses previous studies related to concepts of health institutions, and interaction between nurses and health practitioners regarding learning, getting tools and work practices. The researcher also discusses how the previous studies considered health institutions in emergencies.

There are different approaches in sociology and anthropology to studying transformations in society and to developing interest in health institutions, knowledge and medical practices. Studies of institutions covered the inner social structure of a culture and/or society with the analysis of their functions and inner workings (Durkheim 1893/1947; Malinowski 1939; Nadel 1951; Evans-Pritchard 1951), or with the central focus on social change (Wilson & Wilson 1968; Firth 1969). This included describing the permanent negotiation of adjustments between global meta-narratives and local micro-realities, which emerge and disperse at the same time (Appadurai 1996).

There is a large contribution by public health scientists, sociologists and anthropologists to the study of health institutions in the social, political, and economic context of different communities. They initially considered aspects of preventive medicine and social reform of health care systems since the industrial revolution in Europe in the nineteenth century, for instance in the wake of the institutionalisation of welfare and health services, but also increasingly worldwide and on wide range of interrelated questions. Recurring research questions were: What are the social, political, and economic determinants of illness and health? How can health services be developed, maintained and institutionalised based on these determinants? Who established and who dominated these health institutions?

Definition of Health Institutions

The following definition of health institution serves as the starting point for further consideration:

Institutions are clusters of social roles and norms that structure individual behaviour and practice. Legal institutions are particularly important in shaping our behaviours, by compelling us, by force if necessary, to obey certain regulations. Institutions are receptacles of power and knowledge. They determine how we see, experience, and understand social reality. Medicine, like religion, is a social institution, a collection of social roles, practices, associations, codes, and systems of knowledge that shape the direction and the characteristics of modern society (Turner 2004: XIII).

The formulation “[m]edicine [as] a social institution [...] shape[s] the direction and the characteristics of modern society” (ibid.) invites to question if medicine as a social institution is meant to be an indicator of modernity in society: What form of medical institution and which modernity? Many studies found variations in the formation of health institutions in

different societies, and accordingly formulated different concepts. This research examines the definitions of health institutions within the framework of social situations and the extent to which the structure of health institutions is affected by the dynamics of social situations.

Some Sudan-related studies exemplify the use of the wide definition of a health institution as a “collection of social roles, practices, associations, codes, and systems of knowledge” (ibid.). Afaf Gadh Eldam (2003) and Ahmed Al Safi (2006) understood traditional medicine in Sudan as a system, which is very effective, because traditional healers have power from customers believing in their knowledge. Besides, traditional healers are culturally and economically more easily accessible than health workers of the formal, biomedical system. With this in mind, the research at hand considers traditional healers as medical experts who also function as institutions; they are indeed “receptacles of power and knowledge” (Turner 2004, XIII).

Gerhard Hesse’s (2002) argued along the same line when studying spirit possession and healing in North Kordofan (Jabal Haraza). He gives details about segregated uses of health institutions among traditional healing systems, which embody different medical practices based on beliefs and religious knowledge parallel to the biomedical system. This materialised among the two main ethnic groups in the community, namely the non-Muslim Nuba, who preferred the shamans (*Kujur*) and the Muslim Arabs, who preferred *the faki*. This is an example of peoples’ preference for health institutions related to their social background and identity.

Other researchers were interested in biomedical systems when they studied medical institutions and medical practices. Talcott Parsons looked at medicine as a social institution at the micro-level of the social role of sick persons. Changes in daily routines force sick persons into a process of adaptation to a new situation, which involved expectations from the social environment to obey medical advice and to respond to treatment (Turner 2004: XV, quoted from Parsons 1951). Parsons’ research treats the relationship between doctor and patient as a social system in a medical institution and focuses on the tensions and the conflicts between the two actors.

A study by Andersen examined the role of hospitals as institutions, which “understands the production and legitimisation of differential treatment from the perspective of health workers” (Andersen 2004: 2003). Using qualitative field material from a hospital in Northern Ghana, Andersen analysed the relationship between socio-cultural, biomedical and bureaucratic aspects of hospital practice. Therein he focused on the categorisations of patients and the role of the hospital. Hans van Amstel and Sjaak van der Geest also described several cases to highlight the hospital’s role in the production and legitimisation of retribution (Amstel & van der Geest 2004).

These studies showed that health institutions have power in different societies whether they are traditional or biomedical.

Social Situation and Health Institutions

Several studies have been interested in emerging and institutionalising medical services, especially historical studies about biomedicine in colonies such as Sudan (Gruenbaum 1981; Bell 1999; Bayoumi 2002; Crichton-Harris 2009). The biomedicine or western medicine – as many references called it – started under the Turco-Egyptian regime from 1820 to 1885 for military units to protect soldiers. This feature of health services continued during British colonial rule (1898–1956) with improved quality of health services and an increased number of health personnel. The interest of medical research and treatment in the targeted cases was extended not only to soldiers but also to government employees, their supporters from the leaders of the local population and workers in government-administered production areas.

Crichton-Harris (2009) discussed critically the colonial health policy for bilharzia, showing how the risk of infection for thousands of cotton workers was weighed against the financial gain of income from the Lancashire cotton mills. Similarly, in the Gezira scheme, as an example of health policy “the tension between the need to protect the scheme from disease infection that would jeopardise its operation, and the need to keep the scheme operating cheaply and efficiently, depended in particular on a free flow of cheap labour” (Bell 1999: 91). Gruenbaum also analysed the centralisation of the distribution of medical facilities, personnel and funds in areas of economic importance, such as Gezira, whose medical facilities contrasted with the lack of such medical facilities for the villages only a few miles outside the scheme (Gruenbaum 1981). The colonial health policy also relied on missionary health services in the rural areas, such as Heiban in the Nuba Mountains.

The context of colonial policies shaped the structure of health institutions and preserved a social situation of inequality. Health facilities and medical personnel were centralised in the production centres and urban areas to the detriment of marginalised areas. This constituted a legacy of the post-colonial state, in which national governments have reinforced inequality between urban and rural areas both in quality and quantity of health services (Gruenbaum 1981; Komey 2005).

Interaction of Health Practitioners

Another examined aspect was the interaction between health practitioners in knowledge and medical practices by tracing one actor’s or one practitioner’s relationship with other practitioners in learning, getting tools and work within the social context.

Crichton-Harris and Bell contributed analyses of internal conflicts between the doctors and the British colonial state. Bell argued that the relationship between medicine and capital was much more complicated than sometimes assumed. Disputes over disease control showed a diversity of opinions among doctors, political officials and management agents about how to prevent disease infection balanced against the need to ensure the scheme’s cheap and efficient

operation. Colonial doctors in this case were not always mere slaves to the capitalist project, nor were they always ardent advocates of preventive medicine (Bell 1999: 125).

Crichton-Harris (2009) used in her biographical research on Dr. Christopherson in Sudan personal and official letters from and to him, besides his diary and official documents, to distinguish the variety of moral positions and intentions to engage in the colonies. Medical history does not unfold in a single evolutionary line, but is observed additionally as the interaction of both British physicians and the indigenous population concerning knowledge of diseases and treatments. This interaction between traditional health institutions and practitioners is not provided in detail. It is presented as individual behaviour of colonial personnel rather than legalised or integrated into the state, although traditional health institutions retained power among the indigenous population.

This thesis will thus integrate not just biomedical, but also other health institutions relevant to the population under study. Moreover, all these institutions experienced significant transformations during and after the war, and the impact of the state of emergency on the population and health practitioners has to be taken into account.

Health Institutions in Emergencies

Much research has discussed the institutionalization of humanitarian actors for health services in emergencies. “Emergency is now the primary term for referring to catastrophes, violent conflicts and for human suffering” and it happens based on material conditions like war or natural disaster (Calhoun 2010: 30).

There is long history of actors’ role in the institutionalisation of emergencies, for instance humanitarian medical aid organisations such as the Red Cross and Red Crescent Societies, and Doctors Without Borders. These organisations have been subjected to research with a view to tracing the development of interventions, ethical considerations in medical work under conditions of war and the organisation of work in general. Other actors institutionalized in emergencies include medical military staff, for instance in World War I within national armies, as well as military services for peace-keeping operations under United Nations auspices. These developments spurred medical advances that originated in war, but also revealed efforts and treatments that failed in specific times and places, while the unquestioned priority was the health of the soldiers (Bergen 2007).

When the Red Cross was established in 1863, the predominant practice by nurses was to mitigate the suffering of the dying:

Medical care was rudimentary. But dying was not instant. And in addition to water and clean bandages, nurses helped the dying write home, pray, and achieve what in the middle of the nineteenth century was praised as a ‘good death’, bound up with confession and faith. But the idea of extending care to the injured and dying was embraceable on more secular grounds as well. And it extended after death (Calhoun 2010: 36).

However, medical personnel also encounter ethical questions about who deserves their services, like in Rwanda where doctors worried whether they should treat the injured bodies of potential perpetrators of genocide (Calhoun 2010: 49).

However, the dearth of resources in post-war situations also complicates the situation for health practitioners and leads to the overlapping or conflicting roles within the context of peace-building. The available documentation about the role of health workers in peace initiatives deals mostly with those who work in biomedical institutions and participate in humanitarian organisations. The studies consider the extension of health care delivery to the vulnerable, the promotion of health care to buttress feelings of security and belonging among the communities, and subsequently the strengthening of the social fabric.

According to the reviewed studies, renewed health structures encouraged the displaced people to return home. Activities of health workers in health communication and health education also provided psychological rehabilitation of victims. Health workers furthermore negotiated with high-level conflict parties through the sharing of information and contacts with professional organisations. This included cooperation with colleagues on national and international levels to manage conflicts and to provide training for effective performance. In the case of ongoing conflicts, the refusal to cooperate with specific military parties against others can pressurise those parties (MacQueen & Santa-Barbara 2000; Mori et al. 2004).

Previous experiences of peace-building showed the role of health workers through their organisations in their local communities or international communities that suffered from war. This shows their interaction in knowledge exchange and medical practices within the social situations surrounding them, institutionalised on their power of legitimacy, social solidarity and altruism. An example is the activities of nurses in the Nuba Mountains during and after the previous war, which is the focus of this research.

Literature Review

Previous studies applied diverse theoretical approaches and methodologies in their analyses of health or medicine practices. Studies by Nadel (1946) and Rottenburg (1988) looked at traditional medicine through the lens of anthropological research about Nuba culture. Other

studies touched on health situations and medical services in South Kordofan/Nuba Mountains in historical research about Sudan during colonial times; examples are Bayoumi (2002) and Bell (1999). There were also geographical studies, such as those by El-Tayeb (2002) and Komey (2005), who were interested in the marginalisation of the region reflected in social services and the quality and quantity of health services. Conflict studies debated how war affected health situations in the area during war and post-war periods (Omaar & Waal 1995; Hassan 2005).

The literature review is structured by research focus: anthropological studies about the cultural context of medicine in Nuba groups; the history of health services in relation to emerging forms of government; the marginalisation of the region vis-à-vis ‘central’ areas; and the increase of inequality throughout the war, which continued in the so-called post-war period.

Anthropological Studies

The region had historically a strong presence of traditional healers with a fundamental functional embeddedness in religion. Nadel refers to shamans in the Nuba Mountains as “specialist” in health and treatment beside other specialties (Nadel 1946: 26). They derive their powers from spirits which transmigrate the human vessels to fulfil two roles in society, one is divination and the other one is guidance (*ibid.*; Nadel 1955). These two roles concern health: the divination is for precaution and prevention from illness and diseases; the guidance is for proper treatment of manifest ailments.

Rottenburg refers to shamans’ function as ‘media’. These media work in two generally different kinds of healing priests among the Moro population on Lebu, both called *udhême* and available for illness, misfortune and other calamities. One kind works through inspiration, which is not clearly determined, they ‘see’ the physiological causes of the illness and use mostly practical means for therapy, such as massage and touching with specific roots. The other kind, which may be called priests of possession or exorcists, works as media for spirits, diagnoses the social causes of illness and other crises and normally sends the patient to the source of his or her problems. Their diagnoses concern guilt and offence against the moral order, respectively, and target threats to the human as a whole (Rottenburg 1988: 37–38).

Shamans provide individual physical and mental wellbeing by mediating between individual social lives and external life (spirits or aliens). The *udhême* is both the spiritual centre of the interior world and the medium of the spirits of the external world. As a social institution, he or she can be understood in general as a means to cope spiritually with the changing universe and seems most appropriate for incorporating new ideas (Rottenburg 1988: 41).

These studies focus on health institutions’ function within one social structure, which interacts with the religious/moral system or function as media of interaction between internal social life and external life. The study at hand agrees with Nadel and Rottenburg that medical knowledge and practices, both internal and external to a society, are interacting in social situations.

Its research interest in interaction between health practitioners and other actors in their social situation concerns in particular nurses in war and post-war situations, whose knowledge and practices are adopted through processes of interaction in plural medical systems.

Historical Studies

Colonial policy under the Turco-Egyptian regime (1820–1885) introduced western medicine to Sudan. The main aims of colonial rule were to acquire slaves and gold to stabilise Mohamed Ali's rule, the Vice-Roy of Egypt at the beginning of this period. These aims were reflected in the administrative structure of the regime in Sudan. Turco-Egyptian military elites ruled the country as an emergency establishment; their presence in Sudan was considered no more than a temporary military assignment in a distant battlefield. Accordingly, health services were exclusively for officers, troops and Sudanese who were working in the army. Therefore, the medical administration began and developed as a medical corps; hospitals were part of military barracks in the larger garrison towns of Khartoum, Wad Medani and El Obeid (Bayoumi, 2002: 76–88; Hill 1951: 48). An example is El Obeid Hospital, so named after the capital city El Obeid that was located administratively in Kordofan Province, the only medical facility in the area. Heiban, for instance, lies 221 km away from this point and remained completely untouched.

Western medicine rose to prominence in Sudan in general with the arrival of health personnel from Europe during the Turco-Egyptian regime, but also with Egyptians and Syrians who had been trained at the American University in Beirut. Bayoumi quoted different instances of health personnel at that time, such as “Ismail Pasha [who] was accompanied by his doctor, Ricci, during his command of Sudan, [and] an Italian named Rossignoli [who] was a physician on the staff of Ismail's army” (Bayoumi 2002: 77). Hill mentioned that “[i]n 1850 thirty-two doctors and dispensers from Egypt were distributed among the provinces. The function of these new arrivals was given for public health services (that is, the health of the troops and officials) and vaccination against smallpox” (Hill 1951, 93).

These health services targeted larger garrison towns, although Sulayman Effendi made a medical public health tour of Kordofan to inspect the hospitals in August 1838 and the town El Obeid was cleaned for this occasion (Bayoumi 2002: 80). El Obeid was at that time located administratively in the province of Kordofan¹, and the available sources show that El Obeid as a military garrison was the focus of health services in the whole province, while the regions south of it, such as the Nuba Mountains, were not included in any governmental health services.

1. In 1835, the *mudir* [Governor] of Sudan was upgraded to *hikimdar* [Governor-General]. He administered five provinces in the north by the middle of the century: Sennar, Kordofan, Berber, Dongola and Taka, in addition to the Red Sea Littoral and the vast southern Equatorial district.

In the following periods, this situation did not change very much. Information about the Mahdiyya (1885–1898) is limited in this regard; Bayoumi mentioned, referring to Slatin, that the “services of the medical officers of the Turco-Egyptian administration were sought to cure the Mahdi of his fatal typhus [...] and were acceptable to the regime of the Khalifa Abdullahi, who was willing to infuse western science into the veins of his classical Islamic theocracy” (Bayoumi 2002: 84).

The health policy and administration in British colonial times (1898–1956) were initially essentially under military medical administration, as it was under the Turco-Egyptian regime. It continued the centralisation of health institutions in the towns for exclusive beneficiaries, for instance to protect the health of expatriate administrative and military staff:

The extension of medical services offered by the government was confined to those which could be justified by the state's needs for obtaining local cooperation with the administration (so-called pacification), protecting the work force which was involved in governmental construction and the running of transportation and communications networks; and curbing the most destructive, and thus socially and politically disruptive, outbreaks of epidemic diseases (Gruenbaum 1981: 53–54).

In the Nuba Mountains, Christian missions were leading the biomedical service provision. However, while they often took over an essential role in service delivery in other parts of British Africa, especially in rural areas, their activities in Sudan were limited to the non-Muslim areas so as not to provoke a Muslim backlash. In addition, each mission was assigned a specific part of these areas and, most of all, “provided first aid, such as dressing of wounds and ulcers, but there were only a handful of specifically medical missions: proselytization and education remained the focus for missionaries, who often had a greater deal of difficulty in establishing their stations” (Bell 1999: 13).

In 1921, the Sudan United Mission extended its services to the Nuba Mountains in Kordofan province on the demand of the Sudan Government, followed in 1930 by the establishment of dispensaries in Heiban, Abri and Tabanya. The reassignment of areas in the 1940s led to establishment of another two dispensaries at Moro and Kauda, and the mission also took over the opening of a leper colony at Nyakama in 1949 for about 2,000 lepers (Bayoumi 2002: 117). The Church Missionary Society opened another dispensary at Salara in the mid-1930s (Bayoumi 2002: 114).

These studies underlined interactions between actors such as health workers in military and missionary institutions, which started under colonial policies and continued until the time of the present research. All of these institutions served the health system in emergency situations, while western medicine was introduced and extended under conditions of military colonisation both under Turco-Egyptian and British rule. The missions replaced the absent state services to provide health services for the colonised population and later the citizens under a national government.

Other studies analysed the interaction in knowledge exchange and medical practices between the colonial administration and colonised population. The yellow fever epidemic in the Nuba Mountains in 1940, for instance, showed different interests in emergency situations. Nuba communities, threatened by yellow fever, had interests different from medical professionals, who experienced it as grand scientific event to make field research about the disease and the cure in effected bodies. This focus on research neglected interest in prevention and even wide-spread treatment, as reflected by the criticism of the International Health Division of the Rockefeller Foundation: “[E]ven at the end of our period, the colonial government’s ability to know when major disaster were occurring in some parts of the country, never mind address them, remained extremely limited” (quoted in Bell 1999: 184).

The doctors’ medical research and practices during the epidemic depended on Nuba for accounts of the epidemiological cases and physical evidence but remained without ethical consideration of the patients’ families. For example, a physician called Kirk received police protection in order to take five viscerotome liver specimens on which the yellow fever diagnosis was based; he got the first of them by interrupting a funeral, seizing the body, and punching the liver with the viscerotome. Doctors also treated the communities’ experiences with the epidemic or local health specialities as irrelevant practices (Bell 1999: 190).

This level of interaction reveals not just power relations between doctor and patient, or lack of interaction with colleagues. It also concerns the knowledge and practices that reflect the conditions of imperialism, which determined the level of interaction and created boundaries between traditional medicine and western medicine in Sudan.

Geographical Studies

The study area, Heiban Locality, experienced both marginalisation and the appearance of public administration as a temporary, emergency establishment. Both have been an issue in recent studies on the area.

The development of health services and the related inequality between regions in Sudan have been documented in two statistical studies. El-Tayeb (2002) provided statistical data from the Federal Ministry of Health about specialists, general practitioners, and available hospital beds per 100,000 of population in the seven regions of Khartoum, Central, Northern, Eastern, Kordofan, Darfur, and the South (see Table 1).

El-Tayeb showed that medical services in Sudan experienced negative growth over the long term. For instance, specialists per 100,000 persons dropped, at the national scale, from 2.5 specialists in 1989 to 2.2 specialists in 1998 and further to 2.1 specialists in 2000, while general practitioners per 100,000 persons dropped from 10.4 doctors in 1989 to 6.2 doctors in 1993 and further to 4 doctors by 2000 (El-Tayeb 2002: Table 21 on page 205).

El-Tayeb continued with his claim that:

[e]xcept for health centres, all health facilities ratios show a decline for the Sudan as a whole and for most of the regions. What deserves special emphasis is the decline in the ratio of primary care units in every region despite the CNS adoption of PHC as a means of achieving the health for all strategy. Similarly, during the period (1993-2000) the population/health staff ratio had declined for the Sudan and most of the regions. It is also noticeable the heavy concentration of specialist and other medical staff in 4 regions, particularly Khartoum and Central region (El-Tayeb 2002: 181–182).

Guma Kunda Komey confirmed these observations through his own data and added that:

no significant improvements were made neither in the direction of qualitative and quantitative improvement of the health facilities and medical manpower in aggregate terms, nor in the direction of expending equitably health services into the peripheral regions (Komey 2005: 173).

However, El-Tayeb’s table suggests that Kordofan had less difference in population/health service ratios because of a decline of population and almost no relative change of available specialists and general doctors; only the decline in available beds was greater than in Khartoum. However, according to Komey, South Kordofan had a surcharge of suffering from both the interregional disparity, which means being below the national average, and from intraregional disparity in comparison to North and West Kordofan (Komey 2005: 210).

Komey’s study showed, with a focus on South Kordofan, that policies of health facility distribution under the national government from 1989 and 2002 were similar to the main feature of colonial policies: centralisation of health services around production areas, military troops and big cities. These are a legacy of colonial policies maintaining the unbalanced development between marginalised areas and centres with regard to accessibility to health services.

Table 1: Specialists, General Doctors, and Available Hospital Beds per 100,000 of Population in Sudan, 1989 and 1998

	Year	Khartoum	Central	Northern	Eastern	Kordofan	Darfur	South	Sudan
	States								
Population	1989	9.4	19.5	5.3	10.7	15.0	15.1	21.2	100
Specialists		12.9	02.1	02.8	02.3	0.60	0.40	0.40	2.50
Doctors		50.1	09.6	12.0	10.7	2.70	01.6	01.6	10.4
Beds		153	97.8	151	91.6	48.4	33.2	60.9	76.8
	1998								
Population		14.6	21.3	4.90	11.8	12.4	18.4	16.7	100
Specialists		8.60	1.40	2.30	2.20	0.70	0.30	N/A	2.20
Doctors		30.7	5.50	9.3	6.70	2.70	1.30	1.10	12.0
Beds		120	77.3	206	92.3	65.7	24.7	70.3	79
Population		+5.20	+1.80	-0.40	+1.10	-2.60	+3.30	-4.5	
Specialists		-4.30	+0.70	-0.50	-0.10	+0.10	-0.10	N/A	
Doctors		-19.4	-4.10	-2.70	-4.00	0.00	-0.30	-0.5	
Beds		-15.0	-20.5	+55.0	-25.9	-17.3	-8.50	+9.4	

Source: El-Tayeb 2002: 205; Annual Statistical Reports of 1989 and 1998, supplied by the Department of Health Statistics and Research, Ministry of Health, emphasis added by author.

Conflict studies

Highly war-affected areas, such as South Kordofan in general and Heiban in particular, experienced this disparity in health service provision even more, as a look at recent conflict studies shows.

Jamila Hassan mentioned in her study in Heiban locality from 2005 that there was a lack in quantity and quality of health services. She referred to these shortcomings as a result of the civil war, as “before the war Heiban had a well-equipped clinic” (Hassan 2005: 89). In war time, “health units were operated by the army and only injured people were granted treatment. People were often dependent on the traditional healers and medicine” (*ibid.*: 72). Women died in the delivery process because there was no mid-wife, and they had bad conditions of hygiene (*ibid.*).

Jamila’s statement on the “Heiban clinic” calls for verification. Was the clinic really well equipped, against the background of existing demand, also beyond Heiban? If yes, was this an exceptional case in the midst of inadequate public services? This point seems to contradict the analyses of researchers such as Johnson (2003), Komey (2005), and Manger (2007) who identify unbalanced development and conflicts over resources as among the main causes of the civil war, before it was dominated by military violence.

Furthermore, inequality and disparities in health services concern not only the region in general, but also different conditions inside its boundaries. Rakiy Omaar and Alex de Waal, in their book *Facing genocide: the Nuba of Sudan*, documented how war created bad health conditions but that there were differences between areas in accessibility to medicine. It was not available in SPLM/A-held areas apart from black markets, whereas food, medicine and clothes were offered in the so-called peace camps, built from many *rakubas* (sunroofs) by the Sudanese government. In their documentation, they also reported disparities within the government-held areas, as peace camps often had better conditions than other settlements. These disparities between areas were matters of war policy, as peace camps acted as a “centre of attraction” to govern the Nuba Mountains by Arabic/Islamic ideology propagated within them (Omaar and de Waal 1995: 249). However, “[t]he Sudan government ... blocked any initiative and no one of the UN agencies have been ready to challenge its status as sovereign government” (*ibid.*: 319).

It is interesting to highlight the accessibility of health institutions, and to show the context and implications of different resources. All this calls for a close empirical study of how knowledge exchange and practices emerged in the area both during and between the wars. Health institutions are knitted into the political, economic and social context of colonial and postcolonial situations in South Kordofan/Nuba Mountains. In turn, this is related to the ambiguous demarcation of the area as South Kordofan or the Nuba Mountains, but also to the temporal characteristics of health service development. Instead of being divided into clear-cut periods, unstable health service policies and emergency situations persisted throughout the war and post-war periods.

Heiban offers a particularly strong case to illustrate this. The clinic in Heiban was rehabilitated after the Ceasefire Agreement (CFA) in 2002 by the government as a rural hospital. But up until to the research period, the supply of staff and medicine was neither integrated in the national health system, nor could the more or less regular support by NGOs and local traders of drugs cover the medical demand of the region (Hassan 2005: 89). To trace and analyse this continuous, institutionalised emergency from the viewpoint of health practitioners, especially nurses, is the objective of this study.

Chapter 2: Medical Supply in War, Post-war and Peacetime. Institutionalisation of Medical Kits

Introduction

This chapter investigates what health institutions existed both in rural and urban areas of Heiban Locality through a case study of medical kits. The research focused on medical supply in wartime, post-war and peacetime in the area. Medical kits were designed as tools for medical aid supply during an emergency, but its tools have been institutionalised as a pathway for health service provision in a continuing emergency situation. The researcher will show this by introducing sources of medical supply, health administration and reporting and information systems in the different periods.

In April 2011, the researcher visited the Medical Supply Section in the Secretariat of Health in Kauda. It was a big concrete building, windows and doors newly painted in green colour. The building was located in the big yard of the Secretariat of Health, isolated from other offices in the compound. It was divided into two rooms: the smaller one, the office, with one table, four chairs and one cupboard; the bigger one, the store of medicine, with twelve windows and two air conditioners. The researcher interviewed three nurses who were working in this section.² Two nurses were counting boxes of medicine; another nurse was registering the number in a book. The nurses who counted the boxes said that the boxes were one month's consignments for Heiban Health Centre and Longro Health Centre. Other nurses and the car driver carried the consignments to a car of Norwegian Church Aid (NCA) according to the quota.

The boxes were different with regard to size, contents, and design. One type of box contained medical kits. The difference between medical kits and the other boxes were that the boxes with kits were larger, contained medical equipment as well as medicine and were meant to last for a longer time during emergencies. They were also marked with labels, identifying them as medical kits belonging to a certain organisation and – implicitly – its regulations concerning medical supply. The other boxes were smaller and contained only one kind of drug. They were labelled 'medicine from the Ministry', i.e. South Kordofan's Ministry of Health (SMoH), and also labelled by the companies that produced them.

2. Interview in Kauda on 14/4/2011 with S.H., male, 42, nurse in charge of drug supply in the Secretariat of Health; N.A., male, 47, Medical Assistant in the clinic of the Kauda Teacher Training Centre; assistant for drug supply in Norwegian Church Aid, seconded to the Secretariat of Health and Medical Assistant at Kauda Hospital; S., male, 38, nurse in charge of drug supply in the Secretariat of Health.

The differences between these two types of boxes were not only significant concerning the kind of medical supply they contained but also their historical background and what they signified for their users. The medical kits were first brought in during war time and their supply continued after the peace agreement in 2005, while the medicine from the Ministry of Health started to be supplied in 2010 in the context of the integration process of public administration in peace time.

In the following sections, these differences will be elaborated upon in more detail. The research focuses on the medical kits, how they were designed as means or tools for temporary medical supply in war and post-war situations, but soon turned into the main medical supply system in SPLM/A-dominated areas of South Kordofan. That medical kits took on such a central role – in contrast to the supply by the Ministry of Health – relates to the political and economic crises in a region marked by prolonged war. The researcher will thus trace the institutionalisation of medical kits as a supply system between war and peace time, in order to show the continuities and changes of health institutions in rural and urban areas of Heiban.

Contents of Medical Kits

In this section, the researcher discusses the purposes for which medical kits were designed before their introduction to South Kordofan and the changes in their use after their arrival.

In his text “Vital Mobility and the Humanitarian Kit”, Peter Redfield (2008) discussed the development and limitations of humanitarian kits. He mentioned how the International Red Cross designed first aid kits in the early twentieth century, and defined such kits as:

a mobile repository of potentiality useful implements: Forms of it feature in the long history of military equipment and logistics; as well as craft production. Humble medical versions are common features of private and public, stored in small boxes found in closets, automobiles, aircraft, schools, and many other non-medical settings in anticipation of minor emergencies (Redfield 2008: 148).

A Médecins Sans Frontières (MSF) catalogue defined a medical kit as “[a] kit [that] contains the whole of the needed equipment for filling a given function. Intended for emergency contexts, it is ready to be delivered within a very short time frame” (Redfield 2008: 157). In view of these definitions, one could argue that medical kits confirm through their contents the status of emergency. Their contents were designed to fit emergencies, but they are also a strong symbol and function of the continuity of such emergencies. They address the situation, but do not deal with and remedy whatever caused the emergency.

In the Nuba Mountains, this kind of emergency response was the initial function of medical kits as well. Medical supply for SPLM/A-held areas was supported during the war by NGOs, for example the MSF, Cap Anamur (German Emergency Doctors), UNICEF, and USAID.

Medical kits were designed to be used to dispense the most urgent medical supplies during the war, and they were distributed in the area from 1995 onwards but continued to be distributed throughout the post-war period until the re-escalation of war in June 2011.

The UNICEF branch in Nairobi brought the first humanitarian aid kit to the SPLM/A-dominated area of the Nuba Mountains in 1995, when leprosy and diarrhoea were rampant. In the beginning, medical kits were used to address specific health grievances, but both their contents and their functions transformed as the conflict in South Kordofan developed. Soon medical kits – initially an emergency measure – were used to support the regular infrastructure of clinics and health centres. The most frequent items transferred to the war zone in medical kits in 1995–1997 were check-up beds and pieces of medical equipment, such as scissors, stethoscopes, sphygmomanometers³, surgery equipment, medical cotton, gloves, gauze and boxes of quinine, an anti-malarial drug.

To compare: In 2010–2011, the kits contained mainly medicine, instead of medical equipment, in one instance 1,000 tablets of metronidazole⁴ in one small box, gentian violet⁵ 25 gram in 50 boxes, 1,000 tablets of multivitamins, amoxicillin syrup⁶, ampiclox for pneumonia, yamidine (povidone iodine)⁷, paracetamol, and laboratory solutions.

Thus, the context – war or peace – affected the composition of medical kits, changing dynamically in relation to situational needs, while they remained the fundamental medium for medical supply.

At the same time, the content affected therapeutic and medical practices of health practitioners in a variety of ways. Two health workers, who had gained experience with medical kits in different situations, were interviewed in 2011 and offered interesting insights. One physician from Khartoum, who just arrived to work in Abu Jibayha⁸ hospital and whom the researcher met in Kadugli in 2011,⁹ stated that “a medical kit is a small box or bag, it contains first aid

3. Sphygmomanometer is “an instrument for measuring blood pressure, typically consisting of an inflatable rubber cuff that is applied to the arm and connected to a column of mercury next to a graduated scale, enabling the determination of systolic and diastolic blood pressure by increasing and gradually releasing the pressure in the cuff” (<https://en.oxforddictionaries.com/definition/sphygmomanometer>, accessed 11 December 2016).

4. Metronidazole is used to treat a wide variety of infections, including those in the abdomen, bones, joints, nervous system, respiratory tract, and skin, as well as vaginal and intestinal infections.

5. Gentian violet is a dye used as a histological stain and in Gram’s method of classifying bacteria (http://en.wikipedia.org/wiki/Crystal_violet, accessed 11 December 2016).

6. Amoxicillin is an antibiotic of the penicillin group. It is used for treating infections, for example chest infections and gonorrhoea (a sexually transmitted infection).

7. Povidone-iodine is a broad-spectrum antiseptic for topical application in the treatment and prevention of infection in wounds. May be used in first aid for minor cuts, grazes, burns, abrasions and blisters (<http://en.wikipedia.org/wiki/Povidone-iodine>, accessed 11 December 2016).

8. Abu Jibayha is a city and a locality in the east of South Kordofan.

9. Kadugli is the capital city of South Kordofan state, as well as a locality, situated in the centre of the state.

tools and medicine for minor emergencies”.¹⁰ Another definition stems from a nurse who was working in Kauda¹¹ during and after the war in the Nuba Mountains until 2011. He had a different understanding of what a medical kit is, namely “big strong carton boxes containing equipment and medicine. It is distributed based on the quota for each health unit. It is one of the medical supply systems with which international organisations operate.”¹²

These two different understandings of what medical kits are point to the relationship between the state of emergency (minor-major) and the size and content of the kit. In the first case, medical kits function as a small repository of first aid drugs and medical equipment. In the second case, medical kits are used as a system of medical supply. Still, both practitioners understand medical kits instrumentally as a mobile means and repository to deliver medicine and medical equipment for different emergencies, such as first aid kits for small injuries or burns, and humanitarian aid kits for epidemics or surgery. In short, medical kits are discussed here as ways of providing and/or improving health services in emergencies.

In the following, the researcher argues that the functions of medical kits changed with the intensity of conflict. In short, the contents of medical kits reflected changing assumptions about what medicines/medical equipment are needed and how they should be used. Medical kits began to figure not only as tools for treatment but also as sources of information, knowledge, and energy. The regulations to use and access medical kits, from general administrative planning to concrete distribution, display a remarkable adaptability to the overall political and economic contexts. The medical kit as a means of emergency aid was gradually re-appropriated as a main source of information and access to energy.

Furthermore, medical kits did not just change their material contents, but also altered the infrastructural conditions and knowledge embedded in and associated with them, as a situation of emergency became the dominant social situation. Accordingly, the researcher traces now the changing context of medical kits in South Kordofan, regarding resources of medical supply, health administration, reporting and information system and medical kits' function during wartime.

10. O., Kadugli, 6/5/2011, male, 45, internal medicine physician.

11. Kauda is a rural town east of Kadugli, which was long the military and administrative centre of SPLM/A in the Nuba Mountains.

12. S., Kauda, 14/4/2011, male, 38, nurse, in charge of drug supply in the Secretariat of Health.

Medical Kits in Wartime

Health Administration from 1985 to 1990

During wartime, health services were managed military medical units. When previous civilian health units and health centres were damaged, military medical brigades were the only institutions providing health services for both the civilian population and soldiers. Thus, health services' presence and mobility were linked to military presence and mobility.

Furthermore, the labour force of the military medical units was based on previous civilian health workers who had joined the SPLM/A, soldiers who were interested in health services and received training in southern Sudan or Ethiopia, but also health workers who did not escape when SPLM/A entered their villages.¹³ Overall, they were very few and other health cadres came from other places in Sudan or from outside Sudan to join the SPLM/A voluntarily. In any case, civilian health personnel followed the change of the situation and accepted military domination of their services because no other alternative existed during wartime.

A nursing school, called Ḥakīma Ya'qūb, was established by the military in Jangaro (Lumon) in 1989 to produce more nurses (see Chapter 3 for details). A.K.¹⁴ became responsible for medical supply in the SPLM/A's branch in the Nuba Mountains when he became the head of the school and also included his students as assistants in the distribution of medicine, for instance, when they took with them the available medicine to their villages for vacation and holiday visits. Health services were thus now administered by individuals who were effectively working in military medical units and in the nursing school, and Jangaro's position as headquarter of the military zone was strengthened.

Although the military was the dominant institution, the military hierarchy did not dictate every aspect of life. Rather, there was mutual support during shortages of food and other materials, as T.T. explained concerning the food rations. A cup of yielded crops was a form of moral and material supports for all soldiers, nursing students and teachers: “This portion was distributed equally to all health workers in the military medical units and to other soldiers, there was no discrimination by age or military rank. These forms of supports were a contribution from communities under the supervision of the military”.¹⁵

13. R. said in an interview: “The health workers who worked before war in the SPLM/A-controlled areas and did not escape, they worked with us (military medicine) after they had military training” (Interview with R., Heiban, 13/4/2011, male, 40, Captain in the SPLM/A, responsible of drug supply during war, 1989–1995; translation by the author).

14. A.K., is male, 75 years, director of Ḥakīma Yacqūb School (1989–2006), working as Medical Assistant since 1981

15. Interview with T.T., Kadugli (Hayy Kalimu), 8/12/2010; male, 40 years. He graduated as nurse from Ḥakīma Ya'qūb School, then he studied public health at Upper Nile University. He worked as health secretary from 2006–2010. He became head of the decentralized health system in the SPLM/A areas in 2011.

Kh.A. added: “Other support included stew (*mulāh*) sometimes provided to the nurses in health units by patients as nominal payment for treatment”.¹⁶

Health Administration from 1990 to 1993

Health conditions deteriorated under circumstances of war, shortage of rain, displacement from farming lands and famine, as the central Sudanese Government blocked humanitarian aid to SPLM/A-controlled areas (Omaar & de Waal 1995; Pantuliano 2005; Philpot 2011).

The most difficult years followed a conflict inside the SPLM/A that led to a split in 1991.¹⁷ In the Nuba Mountains, two commanders and some junior officers planned to form an oppositional group to stop the war and start negotiations with the Sudanese government. Yousif Kuwa began an open debate on the situation by founding and convening an Advisory Council in 1992 with over 200 elected members representing the seven geographical sectors in the SPLM/A-controlled areas of Heiban, Delami, Lagawa, Dilling, Ngorban (Umm Dorein), Western Kadugli and Buram. These geographical sectors were formed after a population census had been conducted, the first census carried out in the SPLM/A-controlled areas. The Advisory Council voted overwhelmingly in favour of continuing the war. The responsibility and structure of the Advisory Council was also discussed and following an election in the advisory council a chairperson was appointed, M.A., who happened to be a Medical Assistant and Deputy Manager of the Ḥakīma Ya‘qūb School. Thereafter an Executive Committee was formed with responsibility for social services, such as health education, but also for the peace process, local government, humanitarian affairs and civil administration.¹⁸

The members of the health committee were the teachers of the Ḥakīma Ya‘qūb School, which meant that the teachers’ work came to comprise the administration of health services for both military personnel and the civilian population. According to interviews with A.K.¹⁹ and M.I.²⁰, the health committee managed to stabilise health services to some extent and to mobilise funds based on the information from the population census carried out with participation by Ḥakīma students and native administration leaders. The distribution of health institutions was now based on the new geographical divisions, with the aim was to provide stable health services that did not depend on the movement of brigades.

16. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in Ḥakīma Ya‘qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

17. In August 1991, Riek Machar and other senior SPLA leaders turned against John Garang, causing a split within the SPLA.

18. Interview with Yousif Kuwa Mekki, London, on February 12 and 13, 2001 by Nanne op ‘t Ende (<http://www.occasionalwitness.com/Articles/20010426.htm>, accessed 11 December 2016).

19. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of Ḥakīma Ya‘qūb School (1989–2006), working as Medical Assistant since 1981 (translation by the author).

20. Interview with M.I., Kadugli, 10/04/2011, male, between 50 and 60 years old, teacher in Ḥakīma Ya‘qūb School from 1990 to 2007, then Secretary of Health and in 2010 integrated into the Ministry of Health as a manager of health centres and health units in the SPLM/A-controlled areas.

Therefore, new centres were established in Kadero, Irral, Kumbur and Ildo. The new regulations also allowed for new relations with the civilian population, which led, for instance, to the use of communal labour (*naḥīr*) to rebuild health units and health centres, which had been partially or completely destroyed. Some of the buildings were just huts, others larger, but although there were differences in the number of personnel according to the population covered by the units and centres, there were no significant differences in equipment and facilities, which were overall poor.

In this emergency situation, an organisation was established and registered in Nairobi at the end of 1993 to attract regional and international funds from donor organisations for humanitarian aid. It was called Nuba Relief, Rehabilitation and Development Support (NRRDS); later the name changed to be Nuba Relief, Rehabilitation and Development Organisation (NRRDO). It was established by some elites from the Nuba Mountains, who were attached to the SPLM/A, and headed by N.Ph. They registered in Nairobi because it was forbidden by the Government of Sudan to allow organisations who registered in Sudan to work in the region. This organisation played a major role in facilitating health services. It coordinated health aid and facilitated the logistics between the NRRDO headquarters in Nairobi and the needy population in the Nuba Mountains through a member of the executive committee.²¹

Other changes came with the first graduates of the Ḥakīma Ya‘qūb School in 1990–1991, militarily trained, but civilian nurses, who were deployed to the health centres based on the geographical sectors and population size at that time. Each centre had groups of about 6 to 10 nurses.

It is important to highlight that all nurses the researcher interviewed confirmed that most of the community members had military training as part of the militarisation process in the SPLM/A-controlled areas. However, this did not mean that all members of the communities as well as nurses were belonging to the military or military medical units. At that time, there was, in fact, already a fluctuation between a stronger position of civilian administration, for instance in the Advisory Council, and more domination by soldiers, for instance in the medical supply for both civilians and military which was the responsibility of the manager of the Ḥakīma Ya‘qūb School. This did not necessarily mean that there was a major conflict between these two domains (civilian and military) during the early years of war when soldiers were generally in a position of power. The health personnel, such as the nursing school teachers, had overlapping jobs in institutions in both domains, which thereby facilitated the sharing of knowledge and practices.

21. Interview with M.I., Kadugli, 10/04/2011, male, between 50 and 60 years old, teacher in the Ḥakīma Ya‘qūb School from 1990 to 2007, then Secretary of Health and in 2010 integrated into the Ministry of Health as a manager of health centres and health units in the SPLM/A-controlled areas.

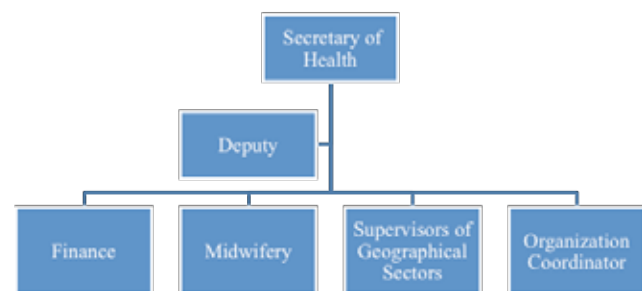
Health Administration from 1993 to 1997

Civil administration departments were established in 1992 during an Advisory Council meeting in Debbi.²² The Advisory Council's new central administrative role, mentioned above, led to the centralisation of decisions taken in annual meetings. At the same time, the decentralisation of SPLM/A's administrative system was decided during the first national convention in Chukudum in 1994, after which the civil service departments were renamed as Secretariats. These Secretariats had administrative and executive functions, while the Advisory Council retained a legislative function.²³

The Secretariat of Health's structure is shown in Figure 1: the highest position was the Secretary of Health, followed by the Deputy who was the rapporteur of meetings and recommendations. The next level comprised the Secretary of Finance, a Supervisor of Midwives, and the Supervisors of Geographical Sectors (from 1990 to 1993 Geographical Centres). At that time, these sectors included health units and health centres in Heiban, Rashad, Lagawa, Dilling and Western Kadugli, where the health workers in the health units formed the lowest level of health administration.

The administrative aims during these years were to enhance the Secretariat of Health's structure and health education to produce health workers, and to improve health communication with communities. The medical kits, which were introduced during these years, also started to shape the medical supply, when pharmaceutical education was limited to workshops for learning some information about medicine in medical kits as well as tasks of medicine distribution.

Figure 1: Structure of the Secretariat of Health



Source: Interview with A.K. (Heiban, 4/12/2010) and M.M. (Heiban, 25/11/2010).

22. Debbi is a rural centre east of Heiban.

23. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban. Interview with N. Ph, by Skype, 15/05/2011; one of SPLA's leaders, Director of NRRDO, 60 years old.

However, seen in isolation, this organogram does not show the continuing overlap of jobs between military personnel and civilian health services personnel. Health education, and civil and military administration were still closely connected, for instance through A.K, who was the Headmaster and teacher of the nursing school and Deputy Secretary of Health as well, being responsible of medical supply for both the military and the civilian population. M.A. was the Secretary of Health and the Deputy Headmaster of the school, as well as the head of the military medical units in the Nuba Mountains.

Kh.A. confirmed in an interview these overlapping positions:²⁴

We were teachers in Ḥakīma, but had also administrative work in the Secretariat. We had to distribute medical kits and organize workshops for training students as well as directly supervise health centres and health units. For example, during these years I was responsible of supervising Kaduro Health Centre and the health units in rural areas in Dalami and Heiban in Al Rashad County. M.A. also had the same responsibility for Lumon Health Centre and the health units in rural areas of Kadugli and Dilling.

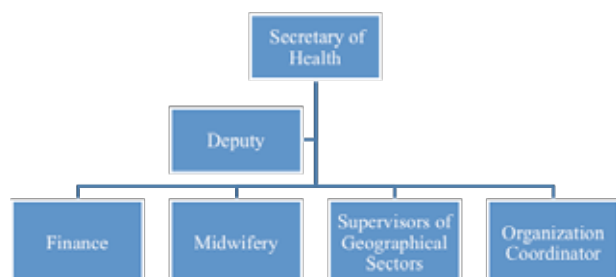
Furthermore, the selection criteria for supervisors and other higher positions at the top of the pyramid structure were a longstanding history in nursing and a high military rank.

Contact and coordination between health personnel in the region were facilitated through regular meetings every three months convened by the Secretariat of Health. In 1996, the Secretariat organised the first health conference in the SPLM/A-controlled areas, and M.M.,²⁵ participating in the conference as a nurse at that time, recounted: "The aim of the conference was to determine the needs for health services, to attract the organisations' funds and to enhance the structure of the Secretariat of Health" (see Figure 2).

24. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

25. Interview with M.M., Heiban, 25/11/2010; nurse who studied in the Ḥakīma Ya'qūb School in 1996 and actively participated in the health conference.

Figure 2: Structure of the Secretariat of Health after 1996



Source: Interview with M.M., Heiban, 25/11/2010.

All these recommendations were summarised and sent to the NRRDO as the coordinator between civilian needs and international donors. The NRRDO had a member in the Secretariat of Health, whose task was to coordinate between organisations based outside the region and the Secretariat inside the region, so that this member also reported to the head office in Nairobi.

After the conference in 1996, international organisations started to come to the area or supported health services through the NRRDO, and subsequently there was some increase of services, as well as provision of medicine and medical equipment. International organisations which provided medical supplies in particular and health services in general during those years included UNICEF, Doctors without Borders (MSF), Holland, and Cap Anamur (German Emergency Doctors). Their support would become of central importance for medical supplies in the years to come.

Health Administration from 1998 to 2002

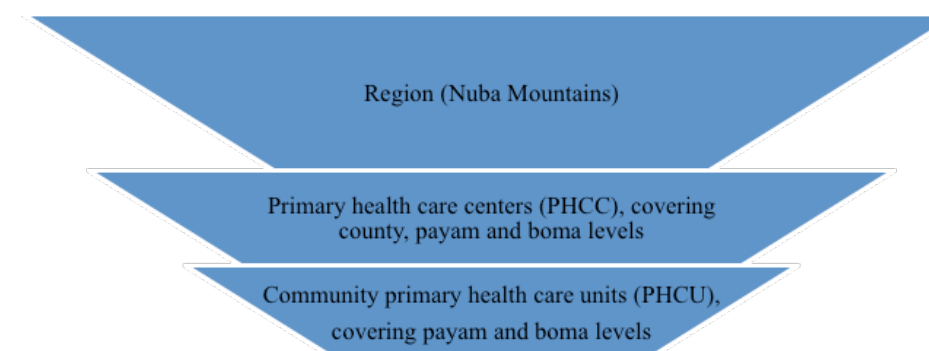
In a meeting in Yei in 1998, the SPLM/A Political Secretariat ranked the establishment and consolidation of civil administration as the third priority after development and consolidation of the SPLA and SPLM. Accordingly, the SPLM formulated a programme for a decentralised system of governance in New Sudan. N.Ph. specified in an interview²⁶ that:

it comprised at the time the five regions of Bahar al Ghazal, Equatoria, Upper Nile, South Kordofan and Blue Nile with the boma as the basic administrative unit of New Sudan, around which social, political, economic and commercial activities evolve. It is the pivot of the civil society and an important focal point and symbol for community mobilization around common values and norms. On top were the payams, counties and then regions.

26. Interview with N.Ph., by Skype, 15/05/2011; one of SPLA's leaders, Director of the NRRDO, 60 years old.

The Secretariat of Health in the Nuba Mountains continued to manage the distribution of health facilities based on the population census and geographical areas that were established after the conference in 1996. However, geographical areas were renamed under the new administrative system and structured more rigorous (see Figure 3).

Figure 3: Structure of Health Administration in the Nuba Mountains after 1998



Source: Interview with N.Ph., by Skype, 15/05/2011.

In greater detail, there were 37 community primary health care units and 5 primary health care centres during the years from 1998 to 2000 (see Table 2).

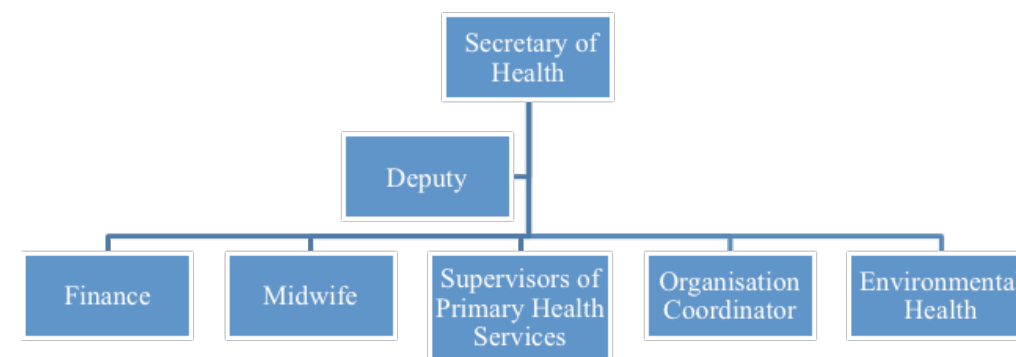
Some changes of the structure of the Secretariat of Health happened in 2002, still under M.A., when T.T. became Organisation Coordinator, as he added offices for Environmental Health and a Supervisor of Primary Health Services, which he managed as well (see Figure 4).

Table 2: Health Care Units and Health Centres in SPLM/A-held Areas, 1998-2000

County	Payam	Type of facility		Total no. per payam
		Community PHCUs	PHCC	
Rashad	Kawalib	3	1	4
	Ildo	4	2	6
	Kombor	5	1	6
	Iral	4	1	5
Kadugli	Ngorban	4	-	4
	Sarif Jamus	4	-	4
	Dimama	3	-	3
	West Kadugli	1	-	1
Lagawa	Tima/Tabag	2	-	2
	Tulushi/Kamda	2	-	2
Dilling	Julud/Wali	2	-	2
	Timin/Katla	3	-	3
Total		37	5	42

Source: Interview with N.Ph., by Skype, 15/05/2011.

Figure 4: Structure of the Secretariat of Health in 2002



Source: Interviews with T.T. (Kadugli, 8/12/2010) and A.K. (Heiban, 4/12/2010).

However, the overlap of functions in the Secretariat of Health and other health institutions persisted, as did the terms of employment, dominated by military rank and duration of history in medical professions. In an interview, T.T. recalled:²⁷

The Secretary was a Medical Assistant. One medical doctor, started in 1998, but his military rank was lower, and he had a shorter experience in war than the Medical Assistant.

The Medical Assistant remained Secretary and the medical doctor became Organisation Coordinator. However, the latter's work assumed higher significance when the WHO entered the scene through Operation Lifeline Sudan at the end of 2001. The latter organisation had started, after hard negotiations, to deliver humanitarian aid to South Kordofan/Nuba Mountains by that time. The Secretary established coordination between the WHO and the Secretariat of Health. When he travelled outside Sudan to study, T.T. took over his responsibilities. As a consequence of this repositioning, the Organisation Coordinator was no longer a representative of the NRRDO, but an open contract-based job with its own terms of employment. This involved more stringent coordination between the Secretariat of Health and several organisations through monthly meetings and reports.

Operation Lifeline Sudan facilitated not only medical supplies, but also supported nurses and health workers. The Secretariat of Health also urged organisations to step up remunerations for health personnel from the previous meagre support in the form of some food in kind:²⁸ M.A., the Secretary of Health demanded from the organisations to support the basic needs of nurses with equal agreeable amounts, either in kind, for example with soap, or with salaries sufficient to cover

27. Interview with T.T., Kadugli (Hayy Kalimu), 8/12/2010.

28. Interview with T.T., Kadugli (Hayy Kalimu), 8/12/2010.

their needs. M.A. demanded that equal amount in order to avoid any row by negative discrimination between nurses who will work on different pay grades in different organisations.

In the meantime, the NRRDO was also registered in the South Sudan Relief and Rehabilitation Commission, and since it had most experience in relief and development work in the region, it was restructured in 2001 to absorb more cadres from the Nuba Mountains.

Sources of Medical Supply from 1985 to 1990

In the beginning of the war period, between 1985 and 1990, people struggled for survival as famine was looming in the SPLM/A-controlled areas, where the supply of drugs and medical equipment had faltered. Under these circumstances, the United Nations initiated in mid-March 1989 negotiations between the two conflicting parties, the Sudan People's Liberation Army and the Government of Sudan (GoS) to deliver humanitarian aid to the civilian population in the south.

These negotiations resulted in an operation that comprised forty organisations under the umbrella of the UN, organisations that had worked in Sudan or had experience with emergencies in Africa. It was called Operation Lifeline Sudan (OLS), and in spite of the short period between the initiation and the rainy season, the OLS had delivered "by the end of 1989, more than 111,000 metric tons of food and relief supplies [...] [to] southern Sudan although the operation faced inaccessible routes, delays, rising costs, and security concerns" (Philpot 2011: 4).

Humanitarian aid by the OLS also included medical supply to the Nuba Mountains at that time, although the operation did not include this area officially, because negotiations had confined the provision humanitarian aid to southern Sudan. The areas of South Kordofan under SPLM/A control received supplies in several ways: one was leakage from southern Sudan through medical trainers or soldiers who came for military missions and carried medical supplies delivered to the leaders of SPLM/A or acquired through the military camps of SPLM/A in Ethiopia. However, such supplies were sporadic and scarce. Another way was through health centres that had requisitioned and been left with medicine and equipment. The SPLM/A thus managed to redistribute medicine and medical equipment to health facilities in areas under SPLM/A control. However, these supplies were not ample, because the area had already suffered from lack of health facilities, medical equipment and medicine before the war.

A third source was the smuggling markets, called *aswag sumbuk* (see chapter 4 for details). This source was also unstable and insecure to the extent that the lives of those dealing in the market were in constant jeopardy. In an interview with A.K.²⁹ who was responsible of medical supplies at that time said: "All these resources were delivered to the head of the zone³⁰ in Jangaro

29. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of Ḥakīma Ya'qūb School (1989-2006), working as Medical Assistant since 1981 (translation done by the author).

30. SPLA organized the areas it held as territorial military zones under one commander, the so-called head of the zone.

(Lumon)³¹, who then redistributed the medicine for free to the emergency cases, especially soldiers. In other words, access to and distribution of medical supply was regulated by one institution, the military, which centralised medical stocks in one location, Jangaro (Lumon). This was also the headquarters of the SPLA's military medical unit, providing a militarily secure place that facilitated accessibility to soldiers as both suppliers and main consumers of medicine.

Sources of Medical Supply from 1990 to 1993

The medical supplies continued in this period to come from same sources as in the previous years, mainly *suq sumbuk*. In spite of tough military action, the SPLM/A achieved in 1993 an agreement with Missiriya groups to exchange goods, which could occasionally include medicine.³²

Another remaining source were the military nurses who carried medicine from outside of the region. Nurses in military medical units were mobile suppliers of medicine from one place to another and transferred medical work experience, knowledge and practices from area to another (see chapter 3). One of these former nurses, L.K, described his journey to the Nuba Mountains like this:³³

We came from Ethiopia to Sudan carrying medicine in the beginning of 1992. I had worked in Torit hospital in Torit, Eastern Equatoria, South Sudan in the same year, then in the middle of the 1992 I went from Torit to Nimule town carrying medicine. I worked there till the end of that year; then we entered Nuba Mountains with medicine.

Medical supplies were distributed in the mountains by both under-graduate and post-graduate nurses of the nursing school, as well as by soldiers. They brought the supplies to the needy areas free of charge, although medicine was difficult to access. R said in an interview that in 1993 the only civilian support in terms of medical supplies was aid from international organisations through the NRRDO.³⁴

31. Jangaro, name of a mountain also called Lumon, later belonging to Umm Dorein Locality. The transcription of the name in Atoro is Janjáro.

32. Interview with Yousif Kuwa Mekki, London, on February 12 and 13, 2001 by Nanne op 't Ende (<http://www.occasionalwitness.com/Articles/20010426.htm>, accessed 11 December 2016). Yousif Kuwa mentioned that there was an agreement between the SPLM/A and Missiriya to exchange substantial goods, such as salt, sugar and clothes, against livestock and other goods. There was no money involved.

33. Interview with L.K., Heiban, 25/11/2010, 43 years, Health Administrator for the Heiban Locality from 2008-2011, Director of Health Centres and Health Units for the Heiban Locality after integration in 2011 (translation by the author).

34. Interview with R., Heiban, 13/4/2011, male, 40, Captain in the SPLM/A, responsible of drug supplies during war (1989-1995).

Sources of Medical Supply from 1993 to 1997

The NRRDO played a major coordination role between organisations that were working from Nairobi and the Secretary of Health when famine conditions and related diseases were prevalent during this time period. The UNICEF branch in Nairobi brought the first humanitarian aid kit to the SPLM/A-dominated areas of South Kordofan in 1995, including a medical kit with leprosy and diarrhoea medicine that were among the rampant diseases at that time. Medical supplies came regularly in the form of medical kits and even more stabilised through Doctors without Borders (MSF) Holland.

No exact date of entry of this organisation could be established, as some stated 1995, others 1997.³⁵ It was generally agreed, however, what health services the organisation provided. Before 2002, when a Ceasefire Agreement had put the war on hold, the MSF Holland provided medical supplies through the NRRDO, and by funding the building of a hospital and a health centre in Jangaro (Lumon) area. Medicine was distributed from there to all health units, especially life-saving and essential drugs.³⁶ With the adoption of medical supply for 12 health centres and 2 health units the MSF became the main provider at that time.

Medical kits were the main supply system for all these health institutions. In an interview with R, he specified that “medical supplies ranged from Procaine to other medicines like Paracetamol, Aspirin and Chloroquine” (see details in section “Contents of medical kits”).³⁷ The work of the health institutions increased gradually, and M.M. recounted:³⁸

There was a health centre in Kadero in the eastern circle in Rashad County, which is now called Heiban locality. Around the health centre were 6 health units. The other one was in Lumon in the west. It was surrounded by 4 health units. The health centre in Temein south-west of Kadugli was surrounded by 6 health units. The total health units were 16.

Then Cap Anamur, also called German Emergency Doctors, entered in 1997 with two physicians and one nurse. They built a rural hospital in Kauda; later moved to Lwere for protection after Kauda had been attacked.³⁹ They constructed small health units around their hospital, but their health services were exclusively for the patients coming to the hospital. They also provided grants regularly to other centres and supported health education for nurses who worked in their health institutions. Other organisations were present only for a short time

35. MSF was expelled from Sudan in 2008 and there were no records available for this research in South Kordofan.

36. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the ak ma Ya'q b School (1989–2006) and Health Supervisor of the Kaduro area located north-west of Heiban.

37. Interview with R., Heiban, 13/4/2011, male, 40, Captain in the SPLM/A, responsible of drug supplies during war (1989–1995).

38. Interview with M.M., Heiban, 25/11/2010.

39. Lwere is a village close to Kauda.

providing medical supplies for health programmes, such as child vaccination, or the Thyroid and Leprosy programme.

In any case, the military and military medical units contributed effectively in the logistics of medical supply distribution. They established a military airport in Tegali and protected and transported medical kits from there. In exchange, the Secretariat of Health gave part of the supplies to the military, and R remembered that “the military took a quarter of the supplies for health units and health centres, which we called ‘exceptional part’, as there was no financial agreement”.⁴⁰

Military medical units brought medical kits hand in hand with nursing students and civilian nurses. They allocated them among the health centres, while the central management of medical supplies was done in the nursing school. During these years, the school moved several times and so did the management of medical supplies. First it moved from Jangaro (Lumon) to Debbi, mainly for security reasons, and then in 1997 to Kadero.

Sources of Medical Supply from 1998 to 2002

Even before Operation Lifeline Sudan's support in 2002, medical supplies had been extended by different organisations and came regularly in the form of medical kits. These organisations also brought their experiences in medical supply management that enhanced control of the supply and demand of medicine (see chapter 4). Thus, the infrastructure of health institutions was supported as well, including a new filing system and administration of health services in the hospitals, centres and units, whereby they also enhanced the nurses' capacities and administrative skills (see chapter 3).

The presence of organisations was often not continuous, as they changed locations or conducted short supply programmes. A few continued for longer periods, such as Doctors without Borders (MSF). When the MSF Belgium entered in 2001, MSF Holland shifted their work to other organisations, such as Medair, which in late 2002 took over the MSF's health centres in the east. The other health centres in Rashad County and in East Kadugli County were handed over to Save the Children.

As a new element, solar systems and cooler chains for many health centres were introduced with UNICEF's medical kits, which the organisation provided for cholera and poliomyelitis vaccinations in 2002. Kauda town was then the main station for solar panels, cooler chains and medical kits, as well as the main site of the Secretariat of Health that had established its offices there in late 2002. The medical kits themselves were delivered first to the airports in

40. Interview with R., Heiban, 13/4/2011, male, 40, Captain in the SPLM/A, responsible of drug supplies during war (1989–1995).

Lumon and Julud, then carried from these two airports by nurses, Ḥakīma school students and soldiers. All of them walked on their feet carrying the medical kits for more than 10 hours to the villages. During vaccination, as happened when vaccinating children in Kawalib, big numbers of nurses and volunteers from the Ḥakīma school carried medicine and vaccines, in order to finish distribution and vaccination in a short time. Military presence in this supply continued as well, and R. reported that the military still took a quarter of the medicine from any of the medical supplies to the area during that period.

Reporting and Information System from 1985 to 1990

In the initial period of the war, the reporting and information system was rather sporadic and only weakly institutionalised. Information about epidemic diseases and availability of essential drugs was communicated orally. These two types of information followed the brigades deployed throughout the SPLA-held areas to the head of the military zone in Jangaro. However, this flow of information was neither frequent nor regular.

A.K. recounted:⁴¹

The reports at that time in 1990, it was oral information. The oral report was about the lack of the essential drugs and/or epidemic diseases. These oral reports were conveyed by 9 nurse soldiers to protect each other and also to carry with them any subsistence and medicine when one of these two reports were available.

These reports concerned the highest dangerous level of treatment, as the medical supplies, for instance with anaesthetic drug Procaine, were first of all for soldiers who had sustained serious injuries, while other medicines distributed during this period related to epidemics, such as diarrhoea affecting children in the beginning of 1990.

To summarise this period, it can be said that health services in general and medical supply in particular were dominated by military institutions in terms of administration, medical resources, medical personnel, access to medicine and knowledge related to the usage of medical supply.

41. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of the Ḥakīma Ya'qūb School (1989–2006), working as a Medical Assistant since 1981 (translation done by the author).

Reporting and Information System from 1990 to 1993

These years also witnessed further stabilisation of health services regarding the reporting and information system. A.K. and Kh.A. detailed the reporting flow cycle.⁴² After the graduation of the Ḥakīma students from 1990 to 1993, the number of 'civilian' nurses increased.⁴³ Accordingly, the information flow changed from emanating only through the brigades (*saraya*) to the head of the zone directly as in previous years, and now originated from both brigades and health units/centres to the head of the zone. In addition, the information was now delivered by three nurses from each health centre. Still, the information continued to be oral, which concerned only epidemic diseases and needed medicine, reflecting the persistently limited resources of medical supplies and health personnel.

Reporting and Information System from 1993 to 1997

Reporting assumed written form after international organisations became involved in the training and rehabilitation of under-graduate and post-graduate nurses. At that time, A.K. still was the head of the Ḥakīma Ya'qūb School and responsible for medical supplies in the Secretariat of Health. The information flow started from the health units (*shafkhanat*) reporting to the health centres, and health centres forwarded the reports to the Secretariat through the Supervisors of Geographical Sectors. The Secretariat provided two reports to the NRRDO and the MSF through their coordinator in the Secretariat, one about medical supplies and the other about epidemics and existing diseases. The epidemic disease report was also communicated to the medical unit commander. The aim of these reports was that nurses should state their units' needs of medicine and medical equipment. They did not contain wider background information on service provision or amalgamation into annual reports, as the information production was for provisory supply. The medical supply report was written in three columns, either in Arabic or in English, first the scientific or the commercial name of the medical drug, then the amount needed, and finally observations, mainly about breakdowns of supply during the report period.⁴⁴

42. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of Ḥakīma Ya'qūb School (1989–2006), working as Medical Assistant since 1981 (translation done by the author).

Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

43. This means they had no military background when they selected health as professional field. But as mentioned before all had military training.

44. This is based on reports consulted during a visit to the Secretariat of Health in Kauda in April 2011.

This reporting was done every three months, and “it became regular because of the restrictive condition that no medical supply was provided if there are no correct reports”.⁴⁵ This improved the skills needed for written reporting (see Chapter 3), but also introduced a new quality to the way in which health institutions in the SPLM/A-held areas of the Nuba Mountains operated.

Reporting and Information System from 1998 to 2002

The reports were not different from the previous years, as health units continued to send their reports to the closest health centre, especially when all of the health units and health centres was under medical and administrative supervision by one of international organisations that financed them. The Secretariat still held monthly meetings with organisations to coordinate the provision of health services; at the same time, military medical units reported to the Brigade Commander.

In addition to these internal reports, there were external reports depending on the supplying organisation’s demand for information, which became one of the main features of reporting and information after the war.

Medical Kits in a Post-war Situation (2002–2005)

Sources of Medical Supply from 2002 to 2005

In 2002, the continuous central role of medical kits found a strong symbol in the new offices of the Secretariat of Health in Kadero, before it moved to Kauda in 2005. In both locations, the Secretariat used as its office the large storage containers previously used to transport and store medical kits. The health administration continued to be based on the medical kit system, although again subject to changes, as the Secretariat had to deal with different regulations of a larger number of organisations.

These organisations’ central role in health care provision changed the information flow from the Secretariat of Health. While information previously accrued only to local organisations, such as the Nuba Relief, Rehabilitation and Development Organization (NRRDO), recipients now included international partners, in order to define needs for an aid plan. This information flow was managed through meetings between organisations and the coordinator in the Secretariat. This flow now changed to reporting to the Secretariat by the international partners, without regular meetings, and the extent and nature of reporting differed between organisations. Organisations such as Cap Anamur (GED) and Save the Children U.S.A. just informed the

45. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Yaḳūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

Secretariat about health institutions run directly by them, thus following their own regulations. Norwegian Church Aid (NCA) and the Medical Supply Section of the Secretariat provided full reports of the organisation’s support. Concerning UNICEF, it was the Secretariat which delivered reports about 69 units in order to receive support.

In the context of the post-war arrangements, organisations working in the SPLM/A-dominated areas also had to reregister in northern Sudan. Even those organisations which already had two branches, both in northern Sudan and southern Sudan or Kenya, were to shift their administration in South Kordofan to the northern branch, such as UNICEF, Save the Children, and Norwegian Church Aid. This did not obviate the need for the Secretariat of Health, however, especially since not all organisations abided by this demand.

This section gives three examples of such organisations with different focus of their work and their relationship with the Secretariat of Health, as seen through the nurses’ experiences as reflected in interviews. The nurses’ statements also showed the continuing overarching importance of the organisations working with medical kits and associated regulations.

The MSF had continued its extensive health service provision, as shown above, and accordingly the nurses described the central role of the organisation. T.T stated in an interview that “MSF *maskat al-jibāl kullaha*” (the MSF covered all [health services in] the Nuba mountains).⁴⁶ Kh.A. also confirmed that the Secretariat of Health worked hand in hand with the MSF in health care provision in the Nuba Mountains, which mainly meant participating in decision-making and the implementation of decisions by local nurses and the Secretariat.⁴⁷

By contrast, Cap Anamur was running its health institutions directly through one or two staff members. These staff members left after one or two years; temporary volunteers stayed only three to six months. The Secretariat of Health participated in the selection process of nurses’ employment, provided short lists of potential health workers and nurses, and supported the transport of medical supplies from the landing strip to the hospital. In general, however, Cap Anamur took over all regulation related to medical supplies for health care providers that were adopted by the organisation, including the power to hire and fire. The medical supplies went directly to the hospital in Lwere without any connection to the Secretariat’s system of distribution. The local nurses also worked under the supervision of German physicians and nurses. Cap Anamur coordinated with the Secretariat only concerning what the organisation called grants to health facilities.

The Norwegian Church Aid (NCA) office in Kauda had staff from the Nuba Mountains under supervision of the office in Kadugli. The NCA was supporting the staff of the Secretariat not just through education and training of the medical supply section, but also shared infrastructure

46. Interview with T.T., Kadugli (Hayy Kalimu), 8/12/2010.

47. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Yaḳūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

with the Secretariat, such as the section's new building in 2005, as well as employees. For example, one of the nurses working in the NCA's health unit at the Kauda Teachers' Training Centre (KTTC) was also working in the medical supply section at the Secretariat of Health. Later he became the Medical Director of a new, integrated hospital in Kauda, once again involved in writing reports for the health administration.

The medical supply section also had three nurses with different depths of work experience. One of them had studied First Aid in 1988 for six months in an institute in Khartoum North (Bahri) and was then trained in Bahri Education Hospital and worked there for three years. Experience with work in an organisation was acquired between 1993 and 1999 in a clinic in the outskirts of Khartoum North (Hajj Yussif), run by an organisation called Save Development and Peace. These work experiences and political affiliation to the allowed the nurse to take several overlapping positions in facilities in SPLM/A-controlled areas.

Overlapping positions were inevitable in the years of the emerging health administration during war time; this was due to a situation of limited resources to produce health cadres qualified enough to meet the demands of the medical kits regulations. The overlapping positions of the few available qualified staff was an administrative necessity and strategy to teach other health workers in different facilities through exchange of knowledge and experiences.

The labour market grew in the time between 2002 and 2005 to include health workers and nurses coming from Khartoum and other places outside the region to work in the new facilities. Even so, the employment of health workers and nurses was exclusive in its political dimension, as the health administration demanded loyalty to the SPLM/A, as well as favouring people from the Nuba Mountains. Although most of employed workers were graduates of the Ḥakīma Yagoub School, the newcomers with other experiences were welcomed and partly took high positions. The Secretariat of Health also tried to fill gaps by starting to formulate job descriptions for those willing to be deployed in the area.

The Secretariat also extended its offices and sections; medical supply got a new building and got responsibilities separate from the Ḥakīma Yagoub School, although students still helped in the distribution of medical kits, since they were the ones targeted in medical kits workshops. The other new sections were devoted to vaccination, water and sanitation, epidemic diseases, as well as women's health represented by a new section for reproductive health, replacing the erstwhile midwifery office.

Health policy also changed with the support of the MSF to train the Ḥakīma Yagoub School's teaching staff in Kenya for six months. Those who had received this training then influenced health policy, as they got the chance to look broadly into the preventive policies of the Secretariat, thereby integrating the Secretariat and the school curriculum.⁴⁸

48. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

Overlapping positions also persisted during this period, as can be seen, for example, in the combination of Office Management, Director of Facilities and Personnel Affairs in one office:⁴⁹

Figure 5: Structure of the Secretariat of Health, 2002–2005

Secretary of Health	Office Management, Director of Facilities and Personnel Affairs
Deputy Secretary of Health	Finance Office
	Organizations Coordinator Office
	Medical Commission Office
	Reproductive Health Section
	Environmental Health Section
	Water Health Section
	Vaccination Section
	Medical Supply Section
	Epidemics Section
	Supervisors of Primary Health Services

Source: Interview with R.J., Kauda, 14/04/2011.

Health Administration from 2002 to 2005

With the Ceasefire Agreement of 2002 and the subsequent presence of an external monitoring body, the Joint Military Commission (JMC), new opportunities opened up for improving and extending medical supplies. It was a period when health units and health centres were built and rebuilt with stronger building materials, such as cement and bricks instead of straw and wood. Organisations which had worked there in previous years extended their work and further stabilised medical supplies. For example, UNICEF regularly provided 70–80 medical kits to 69 health units.⁵⁰

New organisations entered SPLM/A areas during these years as well. An example is Open Doors, a religious NGO describing itself as an “outreach to persecuted Christians in the most

49. The position of coordinator between the organisation and Secretariat was taken successively by Dr. A., M.M., and T.T. Between 2002 and 2005, the coordinator was I.D. (Interview with R.J., Kauda, 14/04/2011; Director of Facilities and Personnel Affairs at Secretariat of Health).

50. Interview with R.J., Kauda, 14/04/2011.

high-risk places”⁵¹, which supported medical supplies by funding purchases of medicine and medical equipment for the medical kits. Norwegian Church Aid (NCA) started activities at the end of November 2002, as did Save the Children USA in the same year, and thereafter the Diocese of El Obeid in 2004.

These organisations were among the most stable medical suppliers during this period. Norwegian Church Aid assumed responsibility for two health centres and six health units, specifically the health centres in Heiban and Longro, and the health units in Chowre, Shawaya, Tarure, Kain and Koruji in Um Dorein, as well as the health unit of the Kauda Teacher Training Centre (KTTC). The NCA built storage facilities for medicine supplies in the Secretariat of Health’s building, which was also used as the medicine supply section of the Secretariat.

Save the Children USA was responsible of the two Primary Health Care Centres (PHCCs) serving the population of Kummo and Ardi-Kanaan, which maintained a stock of drugs, medical and laboratory supplies. The Diocese of El Obeid (DOE) started to build a hospital in Gidel in 2004; it was called Mother of Mercy Hospital and was inaugurated on 18 March 2008.⁵²

The MSF extended its work in many directions of health-related services, such as building health units that covered the treatment of over 4,000 out-patients every month and admitted over 1,000 in-patients monthly. The MSF also supported medical supplies, one main achievements being a Measles immunisation programme covering the whole Nuba Mountains. Furthermore, the organisation provided medical and administrative training for much of the Nuba Mountains.

Cap Anamur continued its work at the hospital in Lwere and took responsibility for five health units in Kauda, Gidel, Kerker, Kawalib and Umdurdo. It also provided medicine not just to their own health providers but also to other health facilities not under their supervision. This form of support the organisation dubbed gifts; the gifts included regularly iodine tincture, dyes for laboratories, for instance to test blood for malaria, and a number of life-saving drugs, such as antibiotics.

One of the combined services provided by these organisations was the extension of the so-called cold chain, which means a system of inter-connected cooling facilities for the purpose of transporting and storing temperature-sensitive medicine. This service meant that the organisations extended the use of the energy sources they had brought as part of the medical kits. Table 3 shows the location and type of energy source that had been used in the cold chain during that period, encompassing 19 administrative units in 2005.

51. Website of Open Doors International (<https://www.opendoors.org/>, accessed 11 December 2016).

52. After the resumption of hostilities in June 2011, this hospital remained the most active and essential health care provider at the hospital level in the SPLA-held areas.

Table 3: Location and Type of Energy Source in 19 Administrative Units in South Kordofan, 2005

Locality	Administrative unit	Electric power generator	Solar energy (panels)
Kadugli	Town	1	3
	Petrol		5
	Buram		3
	Heiban		1
Dilling	Town	1	1
	Al Dibeibat		2
	Habila		3
	Salara		1
Rashad	Town	1	1
	Al Abbassiyya	1	1
	Abu Karshola		
	Um Lubia		2
Abu Gibeiha	Town	1	
	Al Tartar		2
	Al Ragba		1
	Gadid		1
Talodi	Town	1	
	Kalogi		1
	Elliri		2
Total		6	30

Source: South Kordofan Ministry of Health, Annual Report 2005 [In Arabic].

Medical Kits in Peacetime (2005–2011)

Heiban Health Centre

The previous sections showed that medical kits continued to play a central role in the SPLA-held areas in South Kordofan immediately after the war, not just in medical supply, but also in health administration. The microanalysis of the Heiban Health Centre in the subsequent sections will show how medical kits, originally an emergency measure, remained a crucial regular element of health services even after the peace agreement of 2005 entered into effect.

After the researcher had finished her fieldwork in Kauda in April 2011, she was carried to Heiban by an NCA car that delivered a regular consignment of medical kits and medicine boxes to the Heiban Health Centre. When the researcher, NCA employees and the driver arrived at the Heiban Health Centre, she observed it to consist of several buildings, in a compound structure with four sections partially surrounded by a fence. One of the sections regularly in use was to the left of the gate, a clinic with a cemented veranda as a waiting area. Inside were three rooms: one room designated as a pharmacy, but actually contained only a few shelves to store sporadic supplies of medicine; another room used by a Medical Assistant for diagnosis and consultation; and behind it another small storeroom.

On the right side of the gate, a large veranda provided the waiting area for four connected rooms, comprising the immunisation office, a dressing room and two wards. In a nearby building, a large room was used as a laboratory, although the lack of a weatherproof roof limited its usability to the dry season.

Opposite that building, there was a nutrition unit divided into two rooms, one for weighing infants and the other for storing food aid. The latter also connected a closed surgery room and the reproductive health (RH) unit, which served as the provisional office of the RH coordinator of Heiban Locality. The RH unit consisted of a room for pre-natal follow-up and two wards, both run down and disused.

These buildings were not the only ones in a dilapidated state. The Heiban Health Centre previously had a kitchen, now with insufficient roofing, not equipped and not used. A large storage room held nothing but broken furniture, and three usable but rudimentary toilets of originally four, indicated lack of basic services such as electricity and lighting apart from water and sanitation. Neglected buildings for doctors and nurses attached to the health centre showed the originally well-planned layout which had by then been shattered.

In spite of this deplorable situation, the Heiban Health Centre served many villages around Heiban, as evident from the patient case registration book. The book showed patients to have come from more than 20 villages, especially from Longro, Kacama West, Lochlo, Kambala, Kubang, Hajir Bago, and Al-Azraq. Their numbers reached up to 700 patients per month. The workload was even higher during Heiban's market days on Tuesdays and Thursdays,

when patients reached approximately 55–65 cases per day, which the lab could not handle in most cases. During the dry season, numbers were lower, but increased with the rainy season.

The workload was also high for the specialised units, nutrition, reproductive health and immunisation. They were organised to provide additional rounds each Tuesday; the new medicine deliveries allowed extending this service to two days per week. The vaccination register book showed that 236 children were vaccinated in October 2010 hailing from these settlements: Heiban – Seraf al-Nila – Kawarle – Hajir Bago – Haqiba – Al-Azraq – Abol – Lochlo – Kacama – Kubang – Kambara – Kaderu – Oya – Hajir Madani – Oru.

This geographical coverage indicated even larger gaps in health care provision in those areas, since transportation was difficult in any season due to the lack of paved roads in the mountains and lack of vehicles covering the considerable need for transportation. On market days, villagers used tractors or rented pick-up trucks to go to Heiban for many reasons, including a visit at the hospital. In emergency cases patients had to be brought by wooden cots (*'anqarayb*) often ending in death, especially in maternal death during or after transport ordeal. Although also problematic, referral to larger health facilities occurred as well, before the war mostly to the hospital in Kadugli, which had been open since 1927, from 2008 onwards to the new hospital in Gidel and from 2010 to Kauda, both located at least one to two hours by car from Heiban.

Because the Heiban Health Centre covered a large area, there were several efforts by associations and leaders in Heiban to officially upgrade it to a rural hospital, and in colloquial language it was already referred to as 'hospital'. However, the capabilities and facilities contradicted this upgrading and renaming, as shown by the overview of buildings and confirmed by a look at the medical supplies and their sources.

Sources of Medical Supply at Heiban Health Centre after 2005

Table 4 describes what equipment was found in the Heiban Health Centre in October 2010.

Even at this low level, medical supplies depended completely on international humanitarian organisations; neither the South Kordofan Ministry of Health nor the organs of the SPLM/A provided regular services. When checking the existing equipment and medicine, it was detected that even the organisations' supply lines were not part of a full supply system, but part of a provisional arrangement.

Table 4: Equipment and Inventory in the Heiban Health Centre, October 2010

<i>Clinic</i>
Pharmacy
Orofer, Tautarim, Salzone Paracetamol syrup, Oral rehydration salt, Metronidazole Bp syrup, Amoxicillin Trihydrate Bp, Aqueous Penicillin, Erythromycin, drips, Amoxicillin tablets, Vitamin A, Ferrous Sulphate, Folic Acid comprimé, Aspirin, Salbutamol, Distocide, ZinCfant, Ciprofloxacin usp, Paediatric suppository, Promethazine hydrochloride Bp 25mg, Co-trimoxazole Bp, Paracetamol, Salbutamol sulphate, Doxycycline.
Consultation and diagnosing room
Shelves with report booklets, one desk, one sphygmomanometer, one stethoscope, one thermometer, one examination couch with curtain, one scale, one refrigerator running on solar energy.
Small drugstore
Shelves.
<i>Main building</i>
Immunisation office
One office table and refrigerator and freezer running on solar power, with a logo of cooperation between The Government of National Unity, The Sudan National Multi-Donor Trust Fund and the decentralised health system project.
Dressing room
One examination couch with curtain.
Two Wards
17 beds.
<i>Laboratory building</i>
Laboratory
One microscope (acquired in 2007, now obsolete), one microscope in use (since 2009), alcohol and test tubes, two long tables and two chairs.

Nutrition units
<i>In room of food aid storage:</i> Mainly carton boxes of plumpy nuts and therapeutic milk for infants provided by UNICEF, refined vegetable oil provided by the USAID.
<i>In nutrition office:</i> One desk, one scale for weight, a spring scale and one measure of length.
Reproductive health units
One sphygmomanometer, one stethoscope, examination couches with curtains.

Source: Own fieldwork October 2010.

The most regular supply to the health centre was provided by the NCA, which had a storage facility with the medical supply section of the Secretariat of Health in Kauda. Supplies were distributed twice a year; one consignment to cover the period from January through June, the other consignment from July to December, containing the medicine listed in the table above, fitting into two medium-sized boxes.

The reproductive health units got support mainly from the UNFPA and IFAD. The pre-natal follow-up room had been equipped by the UNFPA, which also provided bags for their five trained midwives. IFAD brought beds and a desk in 2008, as well as some wall paint, while providing training for three midwives with certificates and bags. The bags contained two obstetric forceps, two scissors, a bowl, pregnancy tests, thread, and cotton.

The laboratory had one microscope since 2007, which since became dysfunctional. The World Bank brought a new microscope in 2009; the rest of the equipment, alcohol and test tubes were given by the Health Centre Lwere as one of Cap Anamur's 'gifts' every 2–3 months. Although the lab was only supported by such 'gifts' that did not cover its needs, it still had a basic shortage in storage capacities, since there was no refrigerator apart from one in the clinic, already fully used, and one in the vaccination unit, which refused mixed usage, since it was part of the cold chain. Even more erratic were the supplies by UNICEF and the USAID.

The energy system was an exception, somehow, although the original set of one solar panel and a refrigerator for vaccines had been provided by Save the Children USA. However, the extension of electricity through a power generator running on diesel and used during the market days was a solution financed by the health centre itself. Some small items, such as disinfectants, Dettol Antiseptic Liquid Disinfectants, were bought at one's own expense in the market.

In any case, it was the lack of public services provided by the post-CPA Government of National Unity that led to a continuation of provisional solutions. The case of the Heiban Health Centre shows very well how such partial solutions stemmed from emergency interventions understood initially as temporary measures, but later becoming a continuous or even institutionalised emergency that characterised SPLM/A-dominated areas.

During peacetime, it was the failure to integrate the health institutions in SPLM/A areas into the federal health administration system that prevented the emergence of something else (see further details under 'Health Administration'). Thus, the SPLM/A Secretary of Health implemented an agreement with international organisations, a Memorandum of Understanding whose main aim was the continuity of organisations to support health services, rehabilitation for unintegrated health workers and nurses, in short, to reduce the support only gradually until an integration process had taken place and the area had stabilised.

In the field of medical supply, instability was felt very much after the presidential decree of 4 March 2009 led to the expulsion of 13 international organisations, a direct reaction to the President's indictment by the International Criminal Court (ICC). Three of these organisations were effectively working in South Kordofan, namely the MSF, Save the Children US and Save the Children UK.

Consequently, new arrangements were made at the state level, concurrently with SPLM/A's Memorandum of Understanding. One of these arrangements by the Federal Ministry of Health was the introduction of Revolving Drug Funds as a medical supply system. The then Director of Health Units in South Kordofan, M.I., a former Secretary of Health, posted the following announcement in the Medical Supply Section in the Secretariat and copied it to all health institutions (translated by the author):

In the name of God and in the name of the country.

Dear brothers in the health centres and in the health units, I would like to inform you that the system has changed after CPA, since the organisations that used to support free health services and treatment went out of the region. The government's emerging role is to promote treatment by money now that the situation is completely changed, thus we are applying this system for health centres first and then for health units, all of which are ordered to use a revolving drug fund system. This system can improve the continuity of health and treatment services because the essential medicine comes now from the market and only the emergency medicine is coming from UNICEF and WHO. This is for your information.

Signature: M.I.

Director of Health Units in the state (*mudīr al-shafkhanā*)

Accordingly, Revolving Drugs Funds (RDF) were established in SPLM/A-controlled areas in 2009. They worked hand in hand with medical kits to cover available health facilities; medical kits were still provided by other organisations that had not been expelled from Sudan. The RDF had a pricing strategy for health services that was equivalent to the actual cost of the drug purchase plus the operating costs. Fees differed depending on the type of drugs.

Revolving Drug Funds were not new to Sudan's governmental health system. The first capital investment was originally made by the Save the Children organisation in 1989 to apply to projects in 60 health centres, facilitated and organised by the Federal Ministry of Health. The project was later extended to the majority of public facilities in Khartoum state and then to all Sudanese states (Ali 2000). But the project suffered from inadequate medical supplies, as the Federal Ministry of Health, for instance, provided only 4 boxes with 40 tabs for TB and malaria for all ages to one health unit, and a similar failure to solve the most basic problems of medical drug supply continued in this new attempt.

In these circumstances, the insufficient integration of the SPLM/A-controlled areas into the 'governmental system' caused additional problems, such as erratic and slow drug supplies from the RDF system. Many organisations thus continued to offer medical support through medical kits to cover the needs of these areas. At a health centre in Ardi Kanaan, a Medical Assistant explained:⁵³

After the expulsion of Save the Children US and Save the Children UK from Sudan in 2008, medical supplies were affected by delays of inventory and handover regulations. When the health centre and its staff did not become integrated and the Health Ministry lately agreed to hand over to Save the Children Sweden, the existing medicines in the store had already expired.

In other words, rather than being merely about medical supplies in an emergency situation, the situation was exacerbated by the mismanagement of public resources that, in effect, caused a state of scarcity that was dealt with in alternative ways. To give an example: A Pharmacy Assistant in the Heiban Health Centre explained in an interview the use of available additional drug supply sources, such as medical kits, and the compensation of lacking health personnel by unpaid labour:⁵⁴

We give the medicine at a symbolic (nominal) price of 1,000 SD (0.27 EUR) only and if the patient needs more than one medicine we give him or her all what he or she needs for 2,000 SD. This price is the monthly salary of a worker, who did not integrate in the government system, and they are working as volunteers to cover needs of the many areas, not just Heiban.

53. Interview with M., 38 years old, Ardi Kan'an, 20/11/2010.

54. Interview with I., Heiban, 29/11/2010; Pharmacist Assistant and retired SPLA soldier.

Medical kits were thus used not just to fill supply gaps but also to cover the expenses of health centres. The enduring use of medical kits indicated the persistent emergency situation, even after the signing of the peace agreement. The post-CPA government did not take over the responsibility to cater for its own people, failed to fill gaps between needs for health services and actual availability. Thus, doors were opened for private drug stores in the local market to meet medicine demand. A new labour market for health workers also emerged as a corollary. However, the provision of medicines for large parts of the population remained unstable.

While the complications of drug supply in peacetime will be discussed in more detail in chapter 4, it is important to discuss the problems of health administration more specifically at this point, in order to understand better the 'survival' of the medical kits.

Health Administration after 2005

Heiban Locality had experienced two politico-administrative systems during and after war, although most of Heiban's rural areas were under SPLM/A control in wartime. But from the CPA was signed in 2005 until hostilities resumed in 2011, the National Congress Party (NCP) and the Sudan People's Liberation Movement/Army (SPLM/A) tried to construct and reconstruct an integrated administrative system. The administrative structure was to be changed from SPLM/A's pyramid (region, county, *payam*, *boma*) to the federal structure (state, district, locality, administrative unit).

The two governmental organs administering health services were the Federal Ministry of Health, responsible for health in the NCP-controlled areas, and the Secretariat of Health for SPLM/A-controlled areas. There were some efforts at integrating these two organs and their respective administrative systems; however, each conflicting party was interested in maintaining control over the area it already dominated.

On the part of the Secretariat of Health, its interest was evident in its Memorandum of Understanding with international organisations, which not only sustained continuous medical supplies, but also provided space for its own position as the primary provider of health services in the region. The structure did not change during these years; the only change related to staffing at the top echelon: A.K. became Secretary of Health in 2005, after M.M. left as a member of the state parliament; then M.I. became Secretary from 2007 to 2010, afterwards shifted as Director of Health Units to the Ministry of Health.

The year 2010 also marked the completion of the implementation of the integration policy contained in the CPA. According to M.I.,⁵⁵ who was member of two integration committees, the integration was initiated by a technical committee at the state level, whose members

55. Interview with M.I., Kadugli, 10/04/2011.

comprised a broad range of civil service specialisations and two Medical Assistants from the Ministry of Health.

The committee's work started in 2006 with a survey to review and evaluate the qualifications of each worker in the civil service of the SPLM/A-controlled areas, as well as a list of potential employees and workers belonging to the region, provided by the SPLM/A. For example, health workers in SPLM/A areas provided to this committee had educational and work experience certificates plus medical examination reports. The committee conducted interviews with 707 health workers and employees; they integrated 336 of them in the years 2009 and 2010, most of them in jobs of lower proficiency (laboratory technician, dental assistant, nurse, etc.) and 371 were dismissed as so-called defaulters.

M.I., as member of the two committees and representative of the SPLM/A in the integration process, commented there were no clear reasons to categorise professional individuals in the group of defaulters. In an interview with H,⁵⁶ a physician and the director of Kadugli Hospital, he spoke of his own close observation of the integration process, as the hospital also suffered from vacancies. He said the need for health personnel was 750, against the much smaller number of those who were integrated for low-profile jobs. Although he agreed in this point with M.I., he added that many SPLM/A members in this committee, including M.I., were military cadres of different military rank, who sought to be evaluated for civil service based on their military profession by equalling their medical functional degree to their rank, not unusual in Sudan's military medical units. This offered an opportunity to draw salaries from both the military and the Ministry of Health, which was confirmed in interviews with nurses in Heiban locality who had been integrated. This arrangement was not surprising considering the long history of military medical unit's domination of health management, training and rehabilitation (see section on 'Medical kits in wartime').

In any case, the technocrats on the committee followed a strict evaluation standard for civilian health workers and employees and applied these standards regardless of previous education and work. The only questions they permitted was how many continuing years had been spent in study and work experience, what kind of subjects were studied, and what specialty was developed. These criteria of evaluation bluntly ignored educational experiences in wartime and under marginalised conditions that had driven the region into war and remained a problem during peacetime (more details in chapter 3).

56. Interview with Dr. H., 44 years old, 10/04/2011, Kadugli.

A.Z., the Director of Health Services in Heiban Locality, was integrated in 2009 on grade 8 in the Ministry of Health, based on his previous working years.⁵⁷ For him, the problem of integration was that it “had no clear future – while the integration committee had promised a second round of integration, the Ministry of Health announced there is no capacity for new integration.” He saw as a main challenge that there was no money for expenses since all services had to be paid for from the localities’ treasury. During the war, the health administration in the SPLM/A-dominated areas had depended financially on external organisations, especially for medical supplies and manpower. The health administration now found itself between the hammer of the integration problem and the anvil of declining support by external organisations. Heiban Locality, for instance, did not provide any money for the expenses of health services and health administration, and while it had 267 active workers, 118 were not integrated – and thus not remunerated by the Ministry of Health. In the administrative unit Heiban, there were 24 integrated and 22 non-integrated personnel, in the Heiban Health Centre, 2 integrated, 5 not integrated, although all of them held full-time jobs.

Integration not only failed to consider functioning health care providers, the process was also considered a political competition over civil service positions, and over SPLM/A’s effective power during peacetime as a partner in the new government. In this sense, the Secretariat of Health was necessarily a part of the political instability, especially when medical supply faced demands by the needy vis-à-vis an unstable state policy towards INGOs and irregular supplies from the Ministry of Health.

This was the background to the Secretariat’s absorption of new employees who had joined the SPLM/A recently or changed from the Sudan National Party to the SPLM. On one occasion, five employees leaving for an integrated job were replaced by new employees, but they faced unpaid jobs in the Secretariat, which switched its payment system from ‘full commitment and a cup of sorghum’ in wartime to ‘voluntary work’ paid by external organisations. That was one of many arrangements by which the Secretariat attempted to maintain its function as the primary health administration organ in the area. Other factors were discussed above, such as the Memorandum of Understanding and the sharing of personnel and resources with the NCA. On the other side of such agreements, however, the SPLM/A was expected to facilitate as the second partner in the government the registration of international organisations in the Humanitarian Aid Commission (HAC). Registration in HAC was a problem facing the organisations which did not have a branch in northern Sudan and had only worked in the SPLM/A areas during the war. For example, Cap Anamur’s registration was denied in 2011, after many previous rejections throughout peacetime, even though it was one of the most active supporters of health services during and after the war.

57. Interview with A.Z., Heiban, 20/04/2011; has a BSc in Microbiology from Bona University (1998), and obtained a diploma for medical testing from the Institute for Complimentary Medical Studies (in 2002). He worked in a clinic in Abu Gebeiha; then he had a contract with the Ministry of Rural Development and Water Resources in Kadugli until 2007.

Its weak position in the integration process also threatened on many levels SPLM/A’s domination in the areas it had held. This constituted one of the strong reasons for the way integration of individuals was handled in the Secretariat. While new personnel were employed on grounds of political loyalty, SPLM/A’s own integrated cadres used their former positions in favour of the ‘Chosen Areas’, which they were expected to represent in the first place, in spite of their nominally state level positions. For example, the announcement of commodification and privatisation of the medical drug supply system, discussed above, had been done by M.I. at the door of the store of the Medical Supply Section, although it should have been done by the governmental pharmaceutical service in South Kordofan. Under conditions of poor institutional integration, M.I. used his former position as former Secretary of Health in his new position as Director of Health Units to strengthen his power as an individual with effective communication channels in the ‘Chosen Areas’.

However, the integration policy overshadowed reporting and information. Medical supply reports had been shared between the Secretariat and Norwegian Church Aid throughout peacetime until integration started in 2009. Even afterwards, several systems functioned in parallel. At the Heiban Health Centre, for example, staff continued to report about medical supplies both to Norwegian Church Aid and to the state’s Director of Health Services in Heiban Locality. The laboratory, which received regular gifts from Cap Anamur in Lwere, used their health centre’s report form. The immunisation unit, the nutrition unit and the reproductive health unit followed the standard format of the Federal Ministry of Health, General Directorate of Primary Health Care. All the reports were forwarded to the Director of Health Services in Heiban Locality by the health centre’s Medical Assistant.

The disintegration of communication channels had more severe consequences. For example, the polio vaccination campaign in 2011 was supposed to last eight days to cover 4,000 children in Heiban Locality (see chapter 4). In fact, the 4,000 is only 85% of the total population of targeted children, 52% of the 85% were not reached, because there was no coordination between the Secretariat of Health and the state administration of health services, and the problems around integration demotivated unintegrated nurses to participate in the campaign.

There were many arrangements trying to stabilise the campaign, for instance by direct observation by the state’s Deputy Director of Immunisation, intended to solve the expected administrative problems in the locality. However, the case of J.S.,⁵⁸ the head of the vaccination section at the Secretariat, shows the depth of actual disintegration of the health administration. He had not been integrated, in spite of good training and many years of paid and voluntary work experience with organisations such as UNICEF and the WHO. Therefore, he had taken contracted work for vaccination management in Heiban Locality, paid partially by the WHO and partially by the Ministry of Health. At the same time, he maintained his position at the Secretariat of Health.

58. Interview with J.S., Kauda, 16/04/2011.

In the vaccination campaign, the whole area had been divided into geographical units with team leaders responsible for each of them. These geographical leaders were supposed to meet every day with the Routine Officer, in this case J.S., and the Director of Health Services in Heiban Locality. J.S. did not, however, involve the state administration's Director of Health Services, but instead sent daily reports to the Secretariat and directly to the Ministry of Health. The background to this side-lining was his position as defined in his contract, which was not part of the integrated administrative system, and, to some extent, a subsequent lack of readiness to engage with the formal arrangements of such a system. The fact that both J.S. and the Director of Health Services belonged to the SPLM/A shows that integration became problematic not only along the lines of political parties.

The ensuing conflict between the involved health administrators delayed the campaign, and it was eventually extended by three days. The INGOs and local organisations, such as the NRRDO, supported the extension, although their resources were already strained by the preparation of the up-coming state elections in April 2011.

In any case, instead of tackling the underlying problems, a temporary solution was found in what many years with the medical kits had established, and the unresolved tensions persisted. The way the integration policy was implemented did not only affect adversely the human resources situation, it also had a profound impact on the planning and provision of health services. In the end, health practitioners and civil service employees turned their predicament into a popular joke. Rich of black humour, integration in Arabic is *damaj* and its closeness in pronunciation to a certain English word fit well with what they felt: *damaj* is damage.

Summary

Medical kits had been designed as mobile repositories to deliver free medicine and medical equipment for populations in acute, temporary emergency situations. This chapter discusses how the functions of such medical kits changed in the context of an enduring state of emergency in South Kordofan in wartime and peacetime alike. From being means or tools for temporary medicine supply in war and post-war situations, medical kits became the main medical supply system. That change in the function of medical kits as a central element in permanent health care system relates to the political and economic crises in a region marked by protracted war. Fighting had long forestalled the institutionalisation of permanent health infrastructures, leading to a shortage of health services also in the post-war situation – both quantitatively and qualitatively.

The researcher showed how the provision of medical kits became institutionalised and thereby became part and parcel in the organisation of health services in peacetime. Medical kits were crucial sources of medical supply and used to strengthen infrastructural conditions, and to provide material for medical education. The next chapter will concentrate on this last aspect and show how medical education changed during and after the war, and what institutions and interactions were central to this change.

Medical kits were responses to emergencies during the war. In these life-threatening circumstances, the medicines were provided free of charge. Meanwhile medical kits, the once 'free' humanitarian donations, had been commoditised (see chapter 4). This addressed another crisis, namely the deadlock resulting from the failure by both governmental partners to provide adequate health services for their population. Medical kits were designed by international organisations as aid in emergencies. In the SPLM/A-held areas in South Kordofan they turned into the *only* functioning medical supply system, as actors found new ways to use them, to interact with those defining 'needs' and therewith content, and to adapt working conditions to changing socio-political contexts. Medical kits as tangible, material responses to emergencies enabled and simultaneously constrained certain options, thus displaying coercive properties: if actors (local health practitioners) did not engage with medical kits, they might be excluded from the medicine supply chain, knowledge, infrastructure and financial support.

Chapter 3: Health Education and Medical Practices

Introduction

This research has defined institutionalisation as an embodiment of knowledge and practices emerging out of processes of interaction between actors/health practitioners in plural medical systems. In this chapter, the researcher follows processes of institutionalisation into the field of health education and medical practices by studying nurses as actors who incorporate knowledge and medical practices from different health institutions. The researcher traces the nurses' interaction in learning, acquiring tools and working with other health practitioners with a focus on knowledge produced during war and post-war periods in the Ḥakīma (Ya[°]qūb) School. Through biographies and direct observation of specific health practitioners, the researcher traces the varied references that were important for health work after the war. It is documented in detail how a limited understanding of health education and medical practices as informal or formal, traditional or modern is insufficient to understand how the health practitioners studied here acted in their everyday work. They rather embody multiple health institutions that are connected to both their individual backgrounds and the overall situation in which they find themselves.

Education

In 2003, Save the Children USA took over the main responsibility of a medical school called Ḥakīma Ya[°]qūb that continued to function until 2006. In 2004, the organisation started to build a new school in Kummo, which opened in 2006 under the name Ḥakīma. For the director of the new school, it was a separate, new institution, not connected to the old school. However, those closely involved in the history of the old school saw a continuity of historical development.

The implications of these two versions or narratives will become clearer in the course of this chapter, but they point to general perceptions that are carried forward into the debate of emergency and stability. The first version seems to stem from a distinction between wartime and peacetime that sees the former as an emergency and the latter as a situation of stability. The second version rather incorporates the perception of continuities amidst obvious changes, highlighting what connected both schools with regard to staffing and curricula contents. Within the framework of institutionalisation, it is the latter version that allows for better observation of the continuities and changes of health institutions involved in the course of health education and the tracing of developments staffing, aims, students, curriculum contents, facilities and methods at and between both schools.

Staffing, Aims and Students

The Ḥakīma Yaʿqūb School was one of the basic institutions of health education in the SPLM/A-dominated areas during the war and remained an important educational centre at the time of the research. It was established in 1989 by the SPLM/A, named after a killed nurse belonging to the SPLM/A.

At the beginning of the war, health services were managed through military medical units, where brigades functioned as the basic units in the health system (see chapter 2 for details). That led to unstable health provision for civilians, because the brigades were moving constantly. Also, the health workers who stayed in the SPLM/A-dominated areas stopped working because they did not receive payment from the Ministry of Health. This situation created a need for the education of health cadres that could serve civilians *and* soldiers, “the production of health cadres that cover health services for the SPLM areas not just for brigades”, as A.K. had explained. The military medical units established a school absorbed four civilian nurses who did not flee from the area and trained them to cope with the new situation. These four nurses plus two Medical Assistants from the military medical units became the nucleus of the new Ḥakīma Yaʿqūb School’s staff of teachers, among them J.I., O.M., M.K. and S.A., as well as Kh.A. and A.K.

The teachers’ educational and professional background were the main reference points of students’ health education in the Ḥakīma Yaʿqūb School where no library was available. Some staff portrayals will give an idea of how interaction was taking place between all of those reference points.

The school staff from 1989 to 1992 was composed of nurses who studied in the 1970s in Sudan when there was one uniform exam for all nurses. Thus, all teachers had the same certificate, but they had, of course, different experiences in studies and practices. These differences emerged through the division of labour in teaching: J.I. was the teacher of nursing, O.M. the teacher of surgery, M.K. the teacher of obstetrics and gynaecology, S.A. the teacher of pharmacology and Kh.A. the teacher of internists, while A.K. was the head of the school, as well as the teacher of environmental health and health communication.

The portrait of A.K. shows an educational and professional background that reflects the close connection between military medical units and the school, especially in its early years. A.K. was the head of the school from 1989 to 2005; at the same time, he was a Medical Assistant responsible for the medical supplies of the SPLA. He was a teacher of environmental health and health communication, also acted as the personal physician (*tabib khass*) of Yousif Kuwa, as confirmed by himself and other nurses from the area. He had finished intermediate school in 1975 in Kadugli; then he studied nursing from 1976 to 1981. Receiving every year of the study a bar of distinction as a sign of progress, he graduated with a nursing certificate, both of theory and practice, valid throughout Sudan. Then he worked at the governmental hospital in Kadugli from 1981 to 1987 but stopped working for the Ministry of Health and joined the

SPLM/A in 1987. He was trained in Ethiopia for six months; then worked as health cadre in the military educational school in Balfam. In 1989, he returned to the Nuba Mountains as a senior member of the brigade Kush, bringing medicine from Ethiopia to the SPLM/A areas. A.K. worked here as the head of the military medical unit located in Jangaro (Lumon), the same place where the school was located.

In this way, through his positions in military medical units and as head of the school A.K. was instrumental in formulating the policy of the movement with regard to health education, as he said:⁵⁹

The idea of the school was an approach to enter the communities when people had a frightening idea about us, they were running away, and, at that time, to provide health experiences through the school for people, even to those who do not know how to read and write. The school was also important for us as a movement to have our alternative institutions to produce our own cadres.

Thus, the school had at that time two aims throughout the history of the school, as reflected in the interviews that were conducted with staff from that period. The first aim was to establish relations of trust between the SPLM/A and communities by way of health communication as an essential element of what was considered to be a struggle for physical and cultural survival of these communities.

The second aim was to educate health cadres for immediate service. Since these aims emerged under emergency situations, the trained health practitioners were without specialisation. They were trained to cover all types of services needed in emergencies.

These aims were addressed by recruiting three kinds of students from the SPLM/A areas. First, health workers who stayed in the area in spite of the war; second, delegates from churches; and third, community members who were interested in health work. These recruitment criteria were applied regardless to age or gender, with a preference for people who could read and write, although this was not a main condition, especially during the war. Priority was given to students who showed political commitment to the SPLM/A, or at least a tendency towards such a commitment. A fourth category of students was SPLA soldiers in military medical units, including those who had trained outside the Nuba Mountains with a view to learning about available resources in the emergency situation, and to sharing their experiences with the students.

This last group of students could stay for training between half a year and a complete year, while all other students were graduated as health auxiliaries after studying for one year –

59. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of the Ḥakīma Yaʿqūb School (1989–2006), working as a Medical Assistant since 1981 (translation done by the author).

comprising six months theory and six months practical. The first batch numbered 282 students, starting in 1989; and on 1 January 1990, 103 students graduated. The second graduation of 94 students took place on 1 January 1991, and a third group of 85 graduates followed in 1992.

From 1992 onwards, new levels of graduation were introduced. The health auxiliaries had the opportunity to be upgraded as nurses; nursing certificates were given in 1993 to 65 graduates. In this year, another study programme for Medical Assistants was initiated to run for two years, and respectively 49, 60 and 40 Medical Assistants were graduated in 1995, 1997 and 1999, bringing the overall number of graduates between 1993 and 1999 to a total of 214. These educational activities continued until 2005, by which time another 152 graduates had been trained, 45 in 2001, 65 in 2003 and 42 in 2005. Another form of training started in 2000, when teachers were sent to take courses in Nairobi.

During all these years, teachers were introducing new reference books to graduate health auxiliaries, nurses and Medical Assistants, which moved the contents of teaching beyond their previous studies and experiences. Teachers had already related their work experiences to the demands of emergencies through adjustment of the curriculum and overlapping positions in medical and administrative practices.

But even while taking up a broader range of activities, other than those trained for and experienced in, the teachers interacted based on their respective specialities and educational backgrounds as well as the educational references used. In the beginning, instead of interacting based on shared standard educational guidelines informed by the teachers' certificates from one educational system, the variety of backgrounds and situations created a very special form of interaction, which only gradually developed into a consolidated, standardised curriculum.

In this process, which will be discussed in greater detail in the following, the individual backgrounds were an important ingredient. An example is Kh.A., Medical Assistant and teacher at the school, who participated in putting together the basic curriculum for the school.⁶⁰ Born in 1950, he studied nursing in Dilling from 1970 to 1973. At that time, the exams for all health workers in Kordofan were held in El-Obeid, and all hospitals were centrally administered from there. Kh.A. worked in Dilling until 1976. After that, he studied to be a Medical Assistant at an institute for physiotherapy in Khartoum from 1977 to 1979. When he came back to Dilling, he did not find any equipment for physiotherapy, so he worked in Kadugli as a nurse for one year. He moved onwards in 1981 to Yemen, where, after an informal job at a pharmacy, he found formal employment at the Ministry of Health in the town Teis, working with a French mission in the Chest and Heart Disease section at the Al Jamhuriya hospital. During that time, he received on-the-job training in a variety of nursing practices, in addition to work in other places such as Khalfa at the border between Oman and southern Yemen, and in the Habashi

60. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

Mountains, where he worked for two years. These work sojourns added much to his medical experience, and when he came back to the Nuba Mountains in 1989 to join the SPLM/A, he was immediately appointed as a teacher in the Ḥakīma Ya'qūb School, apart from administrative duties for military and civilian health services.

Kh.A. summarised the further development of the situation of the teaching staff by saying that:

[a]ll of the teaching staff with their various specialties and expertise prepared teaching topics from a few books and we created and shared learning methods in this emergency situation. Later, when organisations came, we got workshops related to the provision of medical kits and also teacher training courses in Nairobi.

The organisations he mentioned then took over the role that the Ḥakīma Ya'qūb School had had at the beginning of the war, when it was an institution for health education and communication, but also for the organisation of health services. The school now became more of an institution solely for the purpose of health education, which enhanced the production of health cadres for the SPLM/A areas.

This line of the school's development was continuing after a consulting mission from Save the Children USA, which took over the main responsibility for the school in 2003. Apart from managing the school at Kadero, that organisation also established a new school in Kummo, called the Ḥakīma School and opened in 2006, the same year the Ḥakīma Ya'qūb School closed. As mentioned in the beginning, for the old cadres of the Ḥakīma Ya'qūb School, now found among the political leaders of the post-war Nuba Mountains, the new school continued the practices of the older institution. It was simply rebuilt and stabilised through the support of Save the Children USA. The new school's director, who was also the consultant for Save the Children USA, treated the opening of the new school as ushering in a new era.

The director of the Ḥakīma School, with almost 30 years of medical work experience, had studied in Ethiopia as a Medical Laboratory Technician, and had worked there for three years. Thereafter he had taken courses in medicine and public health for two years, and afterwards continued his work. He started to study once again, pharmacy for five years and added a diploma in Medical Laboratory Technology in 1989 and published three articles in this field. While working in Kenya, he saw job advertisements of NGOs working in southern Sudan, where he came to work for ten years as a consultant for Norwegian People's Aid, starting in 1993. Thereafter, he got a job as a health training coordinator and established a medical school in Chukudum in 1995. The school was moved to Yei for security reasons, and he stayed as its director up until 2003. Before he handed over to a Sudanese director, 601 students had been graduated, laboratory technicians and nurses, six of them from the Nuba Mountains. Then he became a consultant for Save the Children USA and the director of the Ḥakīma School on a six-year contract.

The composition of teachers was by then multinational, mostly Kenyans, Ethiopians, and Nuba, educated in East Africa. The director's years of promoting health practitioners in southern Sudan allowed him to recruit many established teachers from there. The staff at Ḥakīma consisted of not only three general teachers and one lab teacher but also a secretary, logistics assistants, three cleaners, three cooks, three guards and two nurses. Three classrooms included two demonstration rooms and one for anatomy teaching; a resource centre with three rooms comprised a library, a computer lab and a medical laboratory. Accommodation space was enough for 85 students with separate dormitories for males and females with showers and laundries, supplemented by a dining hall, two kitchens and a bakery.

The aim remained catering for the constant need of health education for health cadres to work in the SPLM/A areas, thus filling the human resources gaps. After the conclusion of the CPA, however, the human resources aim was closely linked to the integration of human resources into the Federal Ministry of Health for South Kordofan. In turn, this involved intensive formal training that up until then had been based entirely on educational material from southern Sudan and methods stemming from the war situation and during the transitional period that ensued.

The number of students was reduced to ensure a high quality of instruction, and at the time of fieldwork only 32 students were about to graduate after taking the national examination of northern Sudan. By that time, students came from all over South Kordofan and political affiliation was no longer a selection criterion. Rather, selection was now based on formal criteria, as only students with secondary school certificates were admitted.

As will be shown in the next sub-section, these changes did not mean total discontinuity between the two periods but were rather part of the continuous emergence of health education institutions, which never lost their emergency character.

Facilities, Contents and Methods

When the Ḥakīma Ya'qūb School was located in Jangaro (Lumon) from 1989 to 1992, the curriculum focused on extending knowledge to support health care provision. A system was designed to graduate health auxiliaries after one year of study, split between two periods, six months theoretical study and six months practice.

The teachers had one book written in Arabic called Health Auxiliary, a reference work known throughout Sudan to provide first aid knowledge for students and a basic text for all health workers. Not all teachers had their own books about their respective professional specialisation, because the book sent by a military mission from Kadugli to the school in Jangaro (Lumon) did not cover all subjects, such as surgery, internal medicine and pharmacy. The book was good for health communication with communities, but, for the graduates, medical practices challenged the reference text that was used in their training.

The school changed to give one more year for graduated and practiced health auxiliaries to graduate again as nurses from nursing studies. Towards that end, the curriculum changed to incorporate reference texts for Medical Assistants which were brought by a military mission from Khartoum and Kadugli. This change took place in 1992, parallel to the school moving its location from Jangaro (Lumon) to Debbi for security reasons. However, while the location and curriculum changed, the demanding emergency-like environment for education did not change as it took place with extremely limited resources and under dire conditions. As the researcher will show, the contents and methods of health education were directly linked to these limitations, not only in the way teaching was conducted, but also to which end health education was directed.

The change of contents had very much to do with the changing facilities and overall context of teaching. During the early years, students had to study under the shade of trees and faced limited access to educational materials. A few reference books were conveyed to the students by teachers in the form of lectures. Students and teachers used paperboard cartons cut and sewn to become exercise books, while exams were done orally. Teachers and students mixed sand with gum Arabic and coal powder to cover a part of a wall to make a blackboard, using as chalk materials the white uric acid casts of lizard faeces, cut Cassava (*bafra*), red bricks and chalkstone found in the area of Kurunji.

Limited access to biomedical drugs made treatment and pharmacological training difficult. Teachers supported their teaching by different methods. For example, they tried to keep medicine available as samples to study, although it was difficult to ensure the availability of different types of medicine at the same time. Other methods used to transfer knowledge to the students were to draw medicine from memory and repeating information orally for the students to memorise when students did not have exercise books. Teachers sometimes had to describe all or part of medicines' ingredients in this way.

During this period, one of the teaching methods at the school was to create interaction between students and soldiers in military medical units, who had finished training sessions outside the region. Upon their return to the region, they had at least six months in the school to update the students about knowledge and practices that they had learned and at the same time, during 'rehabilitation', receive information on the health situation, administrative issues, and available resources for diagnosis and treatment in the Nuba Mountains. Other spaces of interaction were health facilities, such as health centres, where Ḥakīma Ya'qūb students received their practical training. In the beginning of the 1990s, there were 20 nursing students, who received training in southern Sudan. In the following years, this opportunity to study nursing in the south was extended to a much higher number of young people.

A short biography of a soldier and nurse, L.K., who had studied outside the region and had a undergone 'rehabilitation' at the school, illustrates well the overlap of military and civilian education.

L.K. was at the time of the interview 52 years old. After completing secondary school, he studied in Kadugli at the institute for health auxiliaries:⁶¹

At that time, you get many subjects when you studied at the Health Auxiliary Institute for one year and a half. One gets a patchwork of sheikh, nurse, Medical Assistant, midwife, cleaner. I liked this study.

He worked as a nurse in the Heiban Health Centre before he joined SPLM/A in 1989. After he joined a military medical unit, he studied nursing for one year and attended 15-day health administration course conducted by the WHO in a refugee camp in Ethiopia, where he worked afterwards in the health centre. In 1992, on his way to the Nuba Mountains, he worked at Torit Hospital in Eastern Equatoria in southern Sudan, attending another week-long course about the fight against diarrhoea. In the middle of 1992, he moved to Nimule and worked in Nimule Hospital, where he also participated in a course of 15 days' duration on essential drugs, organised by several organisations. He continued directly to the Nuba Mountains, where he brought new medicines and knowledge about the use of this medicine, most of all Procaine used for wounds and Gentian Violet for burns, apart from medicine against diarrhoea and widespread epidemic diseases such as malaria. At the Ḥakīma Ya'qūb School he first underwent a rehabilitation course, and then became a trainer and supervisor of students during their practical training at Kadero Health Centre, reporting on their performance to the school.

This portrait gives examples of features of knowledge and practices from many emergency areas by means of different teaching methods, from medical and military training in Ethiopia through learning in refugees' camps to study and work at the Ḥakīma Ya'qūb School. This personal experience of interaction with educational points of references born from emergency situations raises questions of how medical practices emerge, as the primary security concern for the school as a health institution, which repeatedly changed location, was the physical survival of its surrounding community.

The war had forced most communities to seek refuge in higher elevations of the mountains, which were more difficult to access by war machinery. Subsequently, the school followed suit. The school started in Jangaro (Lumon) in 1989, where the headquarters of the military medical units were located. In 1992, Jangaro (Lumon) was attacked by aerial bombing. Hence, the school and the headquarters of the military medical units moved to Debbi and stayed there from 1993 to 1997. Both institutions changed locations again to Kadero in 1997, and moved yet again in 2006, after the CPA, to Kummo as the new Ḥakīma School. Thus, security-related steps were an inherent part of the educational practices during wartime, and, since trust-building with the war-affected communities was one of the main aims, the educational practice was also situated close to the communities.

61. Interview with L.K., Heiban, 25/11/2010.

These circumstances, as well as the hardships during hostilities had adverse consequences for the learning environment when bringing knowledge of treatment and prevention to communities, as well as for interaction between students in knowledge production when studying biomedical concepts and the communities' knowledge of health. Different languages were instruments of interaction in the process of this production; multiple languages were a bridge to getting close to the communities and a means of communication between students, who often spent long years together in the Ḥakīma Ya'qūb School and had the chance to learn languages from each other. This multilingual communication went through all levels of education during that period and was buttressed by the school curriculum and aims. Students were taught in Arabic during the 1990s, when the available reference materials were printed in Arabic, sometimes helped by *ad hoc* translation to local languages.

This doorway between different languages was opened multiple times in locations, thus providing physical protection and also supporting the cultural survival of communities. The multilingual knowledge production occurred in Debbi, Lumon, Kadero, and Kummo, where the languages and knowledge of Heiban, Shawaya, Moro, Leira, Tira, and Atoro were included. Especially in Jangaro, up in the mountains, an ecologically rich environment was used as source for herbs, animals and stones for treatment. The only available vocabulary for these elements of nature was the local languages, which were used intensively by the health workers. For instance, the leaves of the neem tree (*Azadirachta indica* / *nīm*) were called *ʿfāl* and used to treat malaria. Baobab (*Adansonia digitata* / *tabaldiya*) was named *gukórr*, while its fruit (*koñlēs*) was called *lúkor*, eaten or drunk to treat diarrhoea and flu. Tamarind (*Tamarindus indica* / *tamr hindi*) or *gódborá* was taken against bad breath, stomach disorder, as well as malaria. The fruit and bark of the Carob tree (*Ceratonia siliqua*) was used in form of powder to stop bleeding, and chewed pieces put on wounds, because it contains Vitamin K.

To some extent, biomedical concepts were taught for practical experience with the drugs available, such as Gentian Violet, Metronidazole (brand name Flagyl) and Procaine benzylpenicillin, also known as Procaine penicillin. However, this educational practice took place in a situation of extremely limited resources; the dire conditions led to limited access to biomedical drugs, especially for civilians, and more access for the military.

However, the educational practices were not only affected by limited resources, but also showed how the production of knowledge was intended to protect both the physical and cultural survival of the communities. The subsequent language usage led to multiple references that were an active part of the struggle for cultural emancipation. One of the main issues of the armed struggle and one of the explicit aims of the school, a former director of the school (1989–2006) said in an interview that: “we are fighting to let our culture survive, so we have to know it and respect our communities' knowledge”.⁶²

62. Interview with Interview with A.K., Heiban, 4/12/2010.

While this statement expressed the political reference point for the institutionalisation of multiple medical knowledges and practices, Kh.A. in another interview gave details of the subsequent methodology used in education, as well as reflections on the understanding of what part of the communities' knowledge they supported. He stated that "theoretically we taught (bio)medicine but practically we trained them in rural communal treatments (*al-'ilājāt al-balad ya*)", meaning herbal treatment. To specify which part of communities' knowledge in treatment and prevention they included, he continued that "these are known practices, we just organised them or we facilitated knowledge exchange between areas".⁶³

Not all practices were included, as some were considered harmful, such as those used to treat the so-called *jarih* illness. For Kh.A., as Medical Assistant, this illness' symptoms are close to malaria, especially in the advanced stages with high fever and delirium. People who called it *jarih* illness understand it as case of bad mood allegedly because the ill person faced Satan. So, they massage the head with basil leaves (*Ocimum basilicum*) and different kinds of oil. Kh.A. explained the two different understandings of the illness as a case when they taught students to make the right, i.e. the biomedical diagnosis, but also to use in their medical practice the same herbal treatment. He said that he himself used leaves of the neem tree or the mahogany tree (*Khaya* gen.), both either boiled or soaked for 24 hours, then drunk two or three times when needed, in addition to other patient care measures such as compresses to reduce heat. These herbal treatments were taught instead of medication when not available, as Kh.A. expressed it: "We used in contrast with medical concepts *kojlēs* (Baobab) instead of Kaolin to treat diarrhoea."⁶⁴

This interaction between two reference points both improved the emergency situation and the cultural and physical survival of communities. Kh.A.'s and A.K.'s backgrounds and statements indicate the embodiment of knowledge and practices by health practitioners in plural medical systems. At the same time, it also showed how interaction between reference points was selective by those actors; the examples given by Kh.A. and other nurses in the next section show how non-biomedical reference points were used in interaction about existing healing experiences in the communities but limited by the boundaries of the belief systems.

When the researcher asked Kh.A. about *kujur* as a health practitioner and part of the communities' knowledge, and how it could be reflected in his teaching, he changed his sitting position and explained with strong body language:

63. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

64. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya'qūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

In teaching curricula of medical knowledge and practices, we try to give reflections on some herbal treatments, because some herbal treatments are trusted, any person can use them and it was transferred through history of communities' experience. But I am a Christian and people around me also; the school teachers did not discuss the *kujur* practice. It is obviously a myth.

Kh.A. presented his social and professional background, in order to distinguish the harmful practices, the myth, from the empirical practice that he supported during his teaching at the Ḥakīma Ya'qūb School. It is important to point out that although the school was a space for interaction between different reference points of medical knowledge and languages used as bridge between health practitioners and communities, the social and professional background of the involved actors, teachers, trainers and students, influenced what was selectively accepted as legitimate medical practices.

The school as an institution had not only educational or communication functions, it also contributed through its staff and students to the structure and policy of health administration, when the latter was a combination of health education policy and military organisation. At the headquarter of the military zone, the head of the Ḥakīma Ya'qūb School was also the Secretary of Health and responsible of medical supplies for both military personnel and civilians. The biographies of two teachers (A.K. and Kh.A.) and trainer L.K. also show the overlapping positions in military medical units and the civilian health administration. With these positions, the school was responsible not just for educational functions, but also the administration of health services during the emergency (see more in Chapter 2).

The overlapping positions did not mean that the political affiliation to the SPLM/A was the main feature of the school, but rather its domination by the SPLA, as communities and churches provided potential students who were not against SPLM/A, although they had no clear commitment to the movement.

One of these students was T., who got the opportunity to study through the church, and after graduation became a teacher in midwifery at the Ḥakīma Ya'qūb School (1992–2005). The researcher met her in Debbi Health Centre on 21 November 2010, where she worked in spite of not having been integrated. She studied in Heiban Primary School until the sixth grade, then she studied intermediate school in Kadugli, where she also studied midwifery. When the war started she stopped going to school and returned back home. When the Ḥakīma Ya'qūb School was established in Jangaro, she studied there and taught since 1992; then she followed the school to Debbi.

In Debbi, T. said, there were no facilities for graduate nurses with specialisation, so “we tried to graduate students with many specialisations so when they return to their community they will be able help, even in midwifery, so all students, males and female, learnt midwifery”.⁶⁵ Here the changes in the curriculum mentioned above occurred and new books for Medical Assistants became available. T. added that all teachers had used the same book as the primary reference text, which remained in use after the change, apart from additional information and private reference works belonging to the teacher of the respective courses. For her own course she also used her notebook from her studies in Kadugli and the Ḥakīma Ya^cqūb School.

From 1995 onwards, with the beginning presence of international organisations, Doctors without Borders provided a book called *Where there are no doctors* and conducted workshop training, as did other organisations that brought medical kits. This book became an additional basic reference text for teachers and students alike as well as graduated students, and it provided refresher material of medical practice for older health workers. As was mentioned before, especially the midwives were now supplied with medical kits upon graduation.

In an interview with graduated students, they confirmed that workshops were the only form of additional training they had during the war, and it continued in the same vein thereafter. Most students did not remember the exact year of training and the name of the organisations that managed or provided the workshop, so there is only approximate information about workshops conducted during that time.

Vaccination workshops in 1992 and 1993 took place under the supervision of the school, and students distributed vaccinations after the workshops. In 1995, the UNICEF Kenya branch conducted a workshop about diarrhoea, measles and leprosy near the Tegali landing strip under the shade of trees with pens and papers provided by the organisation. The information was based on the participants’ experiences, all of whom were health workers, students and teachers of the Ḥakīma Ya^cqūb School. The workshop’s location showed the need for a secure place, as the UNICEF team was prepared to leave back immediately after the workshop was completed; it also facilitated the logistics of medical supplies distribution to participants. Other similar safe locations for workshops were Tabri, up the Lumon mountains, and sometimes in Kauda.

The contents were communicated in Arabic and partially translated to local languages to enhance the understanding or add clarity to the information conveyed; medical concepts were read and written in Latin language. This linguistic arrangement was adopted because the students’ and graduates’ command of the English language was not adequate, and instruction in English alone would have limited the transfer of knowledge to people who already had a good grasp of that language.⁶⁶

65. Interview with T., she is about 50 years old, Debbi, 21/11/2010.

66. Interview with A.K., Heiban, 4/12/2010, male, 75 years, director of the Ḥakīma Ya^cqūb School (1989–2006), working as Medical Assistant since 1981 (translation done by the author).

In 1997, Doctors without Borders (MSF) established a health centre in Lumon and provided a medical laboratory for the school. With this support, the school was able to offer theoretical and practical studies for health workers about laboratory work. The organisation also became central to other aspects of health education, since structures of supply and knowledge transfer changed concomitantly. Leaders of the SPLA’s military medical units and the school would join meetings with the organisation during workshops, as the need for medical supplies and support was negotiated. However, at that time the need was so great that any support was accepted as appropriate. The MSF’s support was based on available funds at the time, human resources and logistics under conditions of war. The war dictated that support came in the form of big consignments containing medical kits to cover needs of six months or more as a practical solution to a vulnerable transport situation.

Similarly, the place and date of workshops would adjust to the vagaries war. Sometimes the immediate health situation determined the workshop and training design, for example the measles workshop that was arranged in response to a measles epidemic. In general, the workshop methods connected theoretical and practical biomedical concepts to use for existing health services. This connection was also supported by the health facilities established by organisations; in this situation the Ḥakīma Ya^cqūb School was shifted to a new settlement with the opportunity to connect biomedical teaching with medical practice in a health centre established by Doctors without Borders. As the location of the health centre had been selected on grounds of security in wartime, it was later moved again to a down-hill area called Kadero in 1997 and remained there until 2006.

After the INGOs intervened in the school curriculum, the selection of students turned to skills of writing and reading as a basic requirement for admission. This had also to do with new arrangements in the health administration, especially the greater demands of documentation and reporting. The medical kits made it obligatory to write reports when requesting medicine and medical equipment, and the medical kit consignments were sent to health centres or health units only after monthly reports had been submitting. The written reports showed the demand at the time and analysed monthly utilisation and needs. This reporting regulation improved the documentation of the needed supplies, as well as the documentation of epidemic and endemic diseases. Previously, information was reported only orally. So, in spite of the large needs and generally unconditional support they prompted, several new requirements, among them reporting, were introduced to facilitate the regulation of medical kits. The reporting was not only explicitly about the relationship between the input of the medical kits and the output of the consumption of medical supplies, but it can also be shown that knowledge and medical practices were embedded in the medical kits.

The regular reports facilitated the listing of what kinds of medicine and what kinds of medical equipment were available, as well as the tailoring of workshops to different kinds of illness, medicine and practices. Workshops remained a dominant method of teaching by

organisations. But there were also other methods such as learning-by-doing provided by the organisation Cap Anamur/German Emergency Doctors for the nurses who worked in their health centre in Lwere.⁶⁷

This shows that INGOs intervened in the health services of the region by supporting many levels in health education, from materials to training teachers of the school. Doctors without Borders (MSF) Holland is an example for an organisation that intervened in health education not just vertically, but also horizontally in different areas in the region. It provided medical kits to support the drugs supply, built health units and supported health education by materials, courses and workshops designed and based on the contents of medical kits, medicine and medical equipment. In 1998, MSF staff also conducted intensive training for 22 health cadres about primary health care, childhood diseases and endemic diseases. This intensive training included reference books, brochures and handbooks. One of the reference texts mentioned most often in interviews was a disease guide with names of diseases, symptoms, diagnosis and medication.

The nurses benefitting from this training already had one year of study as health auxiliaries at the Ḥakīma Ya^ḥqūb School, but this was an additional course to acquire a full nursing certificate from the school. In both cases, those 22 students had undergone emergency education during the war. First, education was conducted under conditions of emergency, under the shade of a tree, without education materials, medicine and medical equipment, then the support of Doctors without Borders Holland brought education for emergency, which affected the selection of topics.

In the 2000s, the health policy changed in several ways and started to involve many more organisations. With the support of the MSF, the Ḥakīma Ya^ḥqūb School's teaching staff received additional training in Kenya for six months. The school was closed during that period and upon re-opening, several changes materialised. The teaching staff now exerted more influence on health policy, widely reviewed preventive policies and incorporated the book *Where there are no doctors* closer in their teaching and practices. This change was reflected in the curricula as well, as the language used now was English with translation into Arabic, because the MSF supported the study of English language and nursing for three years in southern Sudan. The organisation also conducted research on malaria and set up a laboratory with a technician, which led to a general plan for fighting malaria in the area.⁶⁸

The Secretariat of Health added new offices for environmental health and dealt with a larger number of organisations. Save the Children USA (SC-US) became operational in the Nuba Mountains in 2001 and trained 36 community health workers and traditional birth attendants

67. One of the midwives working there stated that she had started training in 1997 for 25 months in that health centre and she was trained in all sections of the health centre (Interview 09/04/2010 in Lwere).

68. Interview with Kh.A., Kubang market, 25/11/2010, male, 62 years, nursing teacher in the Ḥakīma Ya^ḥqūb School (1989–2006) and Health Supervisor of Kaduro area located north-west of Heiban.

(TBA) through a two-week training course to prepare them to safely conduct their work, including immunisation and case management with families. The World Health Organisation (WHO) supported the management of a vaccination programme, while the UNICEF branch of southern Sudan organised training workshops for polio vaccination in 2000 and in 2002. On the suggestion of the Secretariat of Health, UNICEF also held some courses in health administration at the Ḥakīma Ya^ḥqūb School, not just for students but also for nurses' to enhance their administrative skills.

Save the Children Sweden conducted in 2002 and 2003 workshops over 11 days about six childhood diseases, as well as awareness of HIV/AIDS and gender issues. Norwegian Church Aid, among other organisations, funded preventive health care workshops about improved water pumps and environmental health, and additional courses at the Ḥakīma Ya^ḥqūb School, targeting students and graduates.

The school's position regarding health communication with the communities, however, changed in the years before these interventions. From directing them, the health communication programmes, such as the TB and HIV/AIDS campaigns in the areas of Tangal, Sarf Jamos, Umdulo, Tabanya and Lumon, were now implemented by UN agencies. These campaigns were conducted after the Ceasefire Agreement in 2002, thus the locations were selected from the central areas where people could come down from the hills to attend the activities, instead of according priority to security concerns as in previous years. Translation to local languages was done by the nurses.

Although the workshops were no longer hosted by the Ḥakīma Ya^ḥqūb School and its staff, it retained a strong appearance in them. Located during these years in Kadero, the co-presence of languages and knowledge systems gradually changed. After 2002, health workers were confronted during their education with a single compact system of biomedical knowledge, and cases were discussed in English with Sudanese colleagues who had studied outside Sudan, and with multinational health workers in health facilities operated by international organisations such as Doctors without Borders, Cap Anamur and the Diocese of El Obeid.

However, students from Nuba Mountains in particular remained embedded in a multilingual social environment, and the health workers practiced in a social context characterised by multiple systems of understanding illness and treatment – drugs, herbs, magic – all co-existed for community members they deal with. Accordingly, local languages, English and Arabic, continued to be used in parallel for many of the health workers, both in professional and private communication, for naming of specific medicines and medical practices.

The complex relationship between health education and medical practices marked the last years of the Ḥakīma Ya^ḥqūb School and continued, in a different form, in the new Ḥakīma School. Here the curriculum was planned to initially use the system of southern Sudan “because

both areas were under SPLA control⁶⁹. This system trained auxiliary nurses and auxiliary lab technicians for 9 months, sent for 9 months for practice in their areas, after which they come back until they completed three years of study, although sometimes delayed because of instability in their area. The courses provided specialisation in the nursing profession. This led, for instance, to the division of labour between female midwives, and both male and female nurses. This contrasted to the war situation when medical work was done by all nurses, irrespective of gender. The bias persisted, however, with regard the women being assigned to reproductive health matters. Workshops continued to focus on maternal and child health, namely vaccination and nutrition.⁷⁰

These training sessions were conducted in the English language, but after the CPA it became a political problem to determine the language policy in learning, as the director of Ḥakīma explained:⁷¹

The SPLA areas are taught in English, all institutions like the Teacher Training Centre [in Kauda], they teach in English. [...] So how could we teach those people if we bring the northern Sudanese curriculum in Arabic language, because those people, they can speak Arabic but they do not know how to write.

The Secretary of Health engaged in advocacy for developing a curriculum on two levels. Level one was to discuss these issues with the Governor of South Kordofan, the Secretary of Education and the Ministry of Education. They accepted to teach in English and to use the southern Sudanese curriculum for lab technicians. The second level was to train auxiliary nurses for three years with the curriculum of southern Sudan. At the same time, a state committee was formed to review the curricula of both northern and southern Sudan, comprising representatives of UNICEF, the WHO, the Secretariat of Health, the Ministry of Health in South Kordofan and the Federal Ministry of Health. Concerning these negotiations, the director stated that:⁷²

we used the southern Sudanese curriculum since 2005, it is a phase system meaning it is for an emergency situation, which is the case in the Nuba Mountains, also when the emergency after peace is the human recourse gap in health services. The southern Sudanese curriculum changed in 2006 for the training in continuing years, so we changed our curriculum as well in 2007.

69. Interview in English with Ab., Kummo, 24/11/2010, Ethiopian laboratorian, Director of the Ḥakīma School.

70. Such workshops were conducted by UNICEF and the WHO. In 2005, IFAD provided training for five midwives with certificates and midwife bags.

71. Interview with Ab, Kummo, 24/11/2010, Ethiopian laboratorian, Director of Ḥakīma School.

72. Interview in English with Ab., Kummo, 24/11/2010, Ethiopian laboratorian, Director of Ḥakīma School.

The gap in human resources became apparent when the school announced eight jobs for nursing teachers and only one applied, so they recruited staff from East Africa. This suggested recruitment challenges as discussed in chapter 2, but also the extent of the complications that health education faced in the years after 2005, characterised by the intertwining of a continuing emergency with contents and methods of health education through human resources and facilities.

On closer examination, it is the social situation and the character of health education and medical practices that changed. In the early years of the Ḥakīma Ya'qūb School, the use of multiple knowledge systems was institutionalised as part of the curriculum and through a close connection between education and practice. In this sense, there was a 'public' and systemic presence in the learning process of the school.

With the start of the Ḥakīma School and the recruitment of teachers with experiences exclusively from other countries, the new staff faced different conditions, under which they were supposed to produce a methodology to work with. This can be seen through the portrait of M.W., who came from Nairobi, and at the time of the interview only 34 years old. She started to work in Ḥakīma in July 2009, teaching nursing, as she had done in Nairobi, on an annual contract.

The introductory course she taught had components based on two blocks:

1. Definition of nursing, communication skills, anatomy and physiology (structure of human beings, function of organs), primary health care and community health, environmental health, professionalisation of fundamental nursing (duties and rights), microbiology, sexually transmitted diseases, medical nurses and psychology nurses.
2. Pharmacology, nutrition, social anthropology and research methodology (helping in communities: participatory research with nursing work in home villages or in houses, main questions: what are people doing to promote their health, what are people doing to intervene in their body), family planning, health education, infants' and children's diseases, midwifery, biostatistics/statistical reporting, obstetrics, higher level pharmacology, blood diseases, home-based care (communication with patient and co-patient), bone diseases, urinary diseases, yeast conditions, skin conditions, hormonal conditions, conditions of the nerve system, geriatrics (care for older people), health management.

M.W.'s main challenge was that the level of education of the students was not adequate for giving lectures as she used to and trusting the students to take their own notes. She had to adjust her teaching by writing the lecture on a blackboard and explain various aspects with references to primary school knowledge. Thus, to find a methodology appropriate for this level of education was an everyday challenge. The students had a passion for knowledge, which is what motivated her, but she had to find simple words and explain most matters by practical demonstration. Some very good students helped facilitating the explanation of medical concepts to their fellow students, and she also conducted night classes to make revisions and to fill the

students' basic gaps of knowledge. As a result, she taught the course over 16 hours while it should have taken only 8 hours.⁷³

Health education to provide civilian areas during wartime with basic health services and to preserve at the same time the endangered communal knowledge had characterised the early years of the Ḥakīma Ya'qūb School. The Ḥakīma School in Kummo provided vocational training from the beginning, which tried to develop human resources for post-war rehabilitation with a biomedical body of knowledge that standardised contents, but also separated health education from the diversity of health knowledge in the social environment in which the graduates later practiced medicine.

Work

To follow this research's understanding that health practitioners embody social institutions, the researcher traces their interactions at the Heiban Health Centre, between each other, with their patients, with their social environment, but also with the participant researcher.

In the second visit to the Heiban Health Centre, the researcher toddled into the centre with a plan to do voluntary work. In view of the researcher's limited medical background, this work was not expected to extend beyond first aid practices and reducing fear of injections. Although the researcher had intended in the research proposal to use participatory observation as one of the methodological tools, it was a challenge to apply of this method in the field without a proper background in medicine. It was also to be expected that the researcher's attendance would contradict common perceptions about whose presence should be allowed in a health centre, the common understanding being that only health practitioners and patients would be allowed admission.

In a preliminary work plan, the researcher had listed activities that could be done in spite of the researcher's limited background, yet still be useful for the health centre. The researcher initially started to conduct interviews with the staff about work routines and then asked if there were tasks with which she could help. However, the resulting activities and observations did not yield close insights into the medical practices during work with patients because of doctor-patient confidentiality. Consequently, the observations of the referral system and case management relied on interviews and peripheral participation, as most of the participant work was front-desk registration and basic tasks in the laboratory, including malaria tests. These limitations of participant observation were only overcome in emergencies when there was no restricted privacy and diagnosis and treatment were done openly, as the focus was on immediate survival.

73. Interview in English with M.W., Kummo, 24/11/2010, Kenyan nurse, 34 years old.

Emergency Room

The researcher attended two such cases and made sure with those involved that she could document what she observed. The first case was a burned child brought by her crying mother and grandmother, after they had put red sorghum dough on the skin, in order to relieve pain and remove the burning heat. In the beginning, the researcher was just observing; then she started to pass what the nurse, K., asked for: scissors, cotton, etc. K. used the scissors to cut the dead skin and put a blue or lilac liquid they called *jeshin* (i.e. Gentian Violet) all over the girl's body. It was hard to remove the dough from her skin with cotton dipped in Gentian Violet; the child was crying and there were no pain killers. Then the nurse tried to take the cotton that carried dead skin and the dough from the skin by surgical forceps and cut, put Gentian Violet with cotton on the body, and when he had finished he referred the case to Gidel Hospital. However, there was a problem of transportation, which put the child in a critical situation. After many hours, one driver of an organisation volunteered to drive the child with her mother and grandmother to Gidel, a distance of two hours' drive. The girl arrived very weak and died shortly afterwards. When the Red Crescent organised a first-aid workshop at Heiban Primary School in the following year to train volunteers for the Heiban Health Centre, her mother joined.

The second case was a school-age boy, who had fallen and injured himself. The nurse cleaned the wound around his leg and diagnosed him by touching his arm, whereupon the boy indicated where he felt pain. The nurse diagnosed it as a simple fracture in the arm, calling it a closed fracture, and referred the case to a bone setter called Al Khawaja, living close to the market of Heiban, and the other nurses pointed out his medical abilities.

The researcher could not meet him the same day, but she made an appointment on the following day in his house.⁷⁴ Al Khawaja worked in a room of his house built with clay. The researcher entered his room to find him sitting on the bed, working with short sticks, posters about HIV and malaria awareness hanging on the wall. Behind his back, there hung a board, and there were two chairs and a table with papers, a pen, a radio and a battery-operated light.

Al Khawaja was 85 years old; he had done this work since 1975 after he learned it by practice in Khartoum during his work at the Department of Irrigation. His teacher was a foreigner, *khawaja* as he called him, with the name Samuel. The history of his work started in Khartoum with his co-workers; then he came to the Heiban area to help with his bonesetter experience. During all his work experience, he did not attend training courses or trained himself, apart from his son who was sometime helping him and bringing in knowledge from awareness workshops about HIV and malaria mostly done by organisations for youth.

74. Observations and statements in the following paragraphs are based on visits and interviews on 27-28/11/2010, Heiban.

For him, war was the time with most patient cases, less in peacetime, but at any point in time his monetary revenue was uncertain as he relied entirely on his patients. He always depended on farming, working his own land, while bonesetting was an additional job. During the war, patients were referred directly to his up-hill settlement by nurses and the military head in his area, which was between Korle and Hajir Bago, villages close to Heiban and under SPLM/A rule. After the peace agreement, he started to commute, three days up-hill in Korle and four days downhill in Heiban, including the market days from Tuesday to Saturday. He said that “in wartime I spent almost all my days in the military camps caring for the patients there, their cases were varied because of bombing”. Patients came to his work place in the two areas, up-hill and down-hill, but he still went to attend to rare emergency cases, for example fractures after falling from a tree during the collection of locusts.

The researcher asked him about his treatment of the boy on the previous day and he called one of his sons to explain to me how he works by demonstrating it through a mock procedure. He explained:

When they came I was preparing short sticks tied together with strips of cloth at both ends, this should be ready for any case, it is basically five sticks bound in a short distance from each other, this can be short or be long based on the size of extremities and type of fracture.

Al Khawaja continued to describe step-by-step from preparation to diagnose and treatment. He asked the co-patient, the boy’s mother, to bring penicillin, while he touched the arm of the boy to confirm the accompanying nurse’s diagnosis of a simple fracture. He stated that different sounds of the bones while moving them indicated fractures or other conditions needing different treatment. In this case of simple fracture, Al Khawaja put oil and salt on the top of the fractured arm and applied this mix by gentle touch with his finger around the fracture and beyond it. Then he fixed the bone into the right position, hearing from another kind of sound when the fixation was right. Then he put the bundle of sticks around the simple fracture and bandaged it with white gauze. Finally, he asked the nurse to inject the boy with 2 cc penicillin and demanded the boy to visit him after two weeks, the normal healing period for such a fracture.

The diagnostic method thus depended on his touch and hearing specific sounds, determining the location of pain and kind of case, and subsequently deciding which treatment to use. In the absence of the expected sound, he ruled out fracture and just puts oil and salt on the place of pain and wrapped it up with white gauze. The patient is then expected to be healed after two days, and the bonesetter’s only advice for the patient is to eat well.

Al Khawaja described his area of speciality as “all fractures, only fractures of the skull I refer to the closest hospital”, which in this case is Gidel. He does not refer to other bonesetters, the referral is only done to him by nurses and in dangerous cases he refers them to the hospital. Accordingly, the referrals from nurses were mostly fractures in all of the body’s bones, except skull fractures and other special cases; however, not only nurses referred cases to him but also

the Medical Assistants, as did the one working at the Heiban Health Centre. Part of this co-work included a list of nurses on whom he could rely to give injections in his two workplaces, Korle and Heiban, as well as in other villages he covered with his service. His medical equipment was variably linked as well: The ostrich oil he used was supplied by traders directly from Juba upon request; the sticks came from a palm tree in front of his house.

After the visit at Al Khawaja’s, the researcher discussed with the Medical Assistant at the Heiban Health Centre, K.K., his referrals to the bonesetter, including his own son, and other referrals.⁷⁵ He answered that he only referred patients to the bonesetter in cases of simple fractures, other cases were referred to Gidel hospital. When the researcher inquired if there are *kujur* in Heiban and if the bonesetter would be considered as such, being referred to by medical practitioners, he deprecated the question and stated that “my Christian background gave me awareness to fight *kujur* and other harmful practices for the sake of right-mindedness”. He also claimed to be unaware of *kujur* in Heiban, “because people do not come to me to speak about *kujur*”. Implicitly excluding bonesetters from the category *kujur*, the latter appears here as a strong example of erroneous health knowledge that should be fought, similar to the stand-point that Kh.A. had formulated (see section on ‘Education’ of this chapter).

K.K., 55 years old in 2011, had been a general Medical Assistant since 1973. He has studied at the Institute of Medical Assistants in Kadugli and worked in the Heiban Health Centre since the Ceasefire Agreement in 2002. Initially, the Heiban Association in Khartoum paid his salary as part of efforts to upgrade the health centre to become a rural hospital. Although he was integrated in 2009, the process to upgrade the health centre faced many delays and so he abandoned his plan to become the medical director of a rural hospital. Even after his integration, he dealt with the problem of getting the nurses and health workers at the health centre integrated, and at the time of the interview he said “we still have [only] promises from the head [*mu^c tamad*] of Heiban Locality”.

In response to this situation and in bringing together his individual abilities and ambitions concerning opportunities of the health centre, K.K. established his own network of private medical businesses in Heiban market, encompassing a private clinic referring to and receiving referrals from a drug store, whose owner was also a partner in the clinic. So K.K.’s referral practices to Gidel Hospital and the bonesetter not only represented a middle ground between biomedical and in some cases accepted ‘traditional’ medical practices. Through his referrals, he also served as link between public and private health services (see chapter 4).

75. Interview with K.K., Heiban, 27–28/11/2010.

Clinic

Another case observed inside the health centre occurred when the researcher awoke one morning with fatigue, joint pain, vomiting, headache, dizziness and a fever that she had ignored for four days. This time the researcher went to the health centre as a patient. The researcher met the Medical Assistant and told him the symptoms; then he wrote something on a small piece of paper and referred her to the lab technician H.S.⁷⁶ There the researcher paid 3,000 Sudanese pounds to the patient registrar. When it was the researcher's turn, the registrar called the researcher's name and she entered the lab where she met H.S. who tested blood to find indications for malaria. The test was positive, H.S. said, and referred the researcher with another small paper back to K.K. who diagnosed the case as malaria based on the symptoms the researcher said and the malaria blood test. He asked the researcher which type of drugs the researcher normally used for malaria; the researcher responded that this was only the second time to have it, but in general the researcher preferred tablets and the medicine should be strong to have a fast effect in short time. So he wrote a prescription in Arabic for Artemisinin⁷⁷ and Panadol (Paracetamol). When the researcher asked what medicine is generally available in Heiban, he said malaria drugs prescribed and used here were Artemisinin, Chloroquine and Quinine, all in the form of tablets and injections, adding that Artemisinin was available in the next room, their pharmacy.

I.B., the Assistant Pharmacist,⁷⁸ insisted that the researcher be given these medicines free of charge; the researcher demanded to drop Panadol, though, because she had already bought it three days before from a drug store in the market to treat headache and fever. When the researcher asked about the cost of these medicines, he replied that the two medicines together cost 2,000 Sudanese pounds. The Assistant Pharmacist took the tablets from a big box and added a silver strip. "These medicines were manufactured in Khartoum, Sudan" was printed on the box and above the print somebody had written by pen the medicine's name and dosage in Arabic. He advised me to eat well before taking the tablets and drink much water afterwards. The researcher took three days' rest to give the Artemisinin time to take effect.

76. Information of the next paragraphs from observations in the Heiban Health Centre, 21/4/2011. H.S., 35 years old, was an integrated lab technician in the centre. He had studied three years in Nairobi, was an SPLA soldier and worked for three years with Cap Anamur/GED in Lwera.

77. An alternative name for this anti-malarial drug, used in Heiban and other areas of Sudan, is *r jim t* (mortars), i.e. a military term. In fact, the drug is derived from *Artemisia annua* (sweet wormwood), well established in Chinese medicine, i.e. a herbal treatment.

78. I.B., about 63 years old, has studied auxiliary nursing in Kadugli from 1984 to 1985, then joined a military medical unit until he left for commercial work in northern Sudan. In peacetime, he worked in the Secretariat of Health for three years as an assistant head of the drug store, after that he started to work in the Heiban Health Centre as an Assistant Pharmacist.

During these three days, nurses, friends and host family gave advice regarding treatment of malaria. All agreed, for example, about their own experiences during war, when they had to use *neem* leaves (*Azadirachta indica*). The leaves of one branch should soak in water overnight to be drunk with breakfast with much water because it has a bad taste; others advised to put the leaves in boiling water to make tea, but all agreed to take it once a day. Other drinks recommended during malaria were *ardeeb* (*Tamarindus indica*) and *konglez* (*Adansonia digitata*). Some nurses preferred to write a prescription for any of malaria medicine as injections because it had less effect on the stomach.

Once again, the multiplicity of treatments, with a strong presence of plant-based medication, was not just out of preference and choice, but were connected to a history of meagre resources, such as the limited availability of malaria drugs during wartime. One informant told me that during his work for the military medical supply system from 1989 to 1995, the only access to medicine was *sug sumbuq* and Chloroquine the only available antimalarial drug, with a high and unstable price.⁷⁹ A nurse working during the war in the region and then in the medical supply section in the Secretariat of Health mentioned that two packs of quinine became available with each medical kit (see chapter 2).

As in other overlapping systems due to complex developments under emergencies, the Heiban health practitioners dealt with multiple possible references even in malaria medication. Historically, Quinine was prevalent since the 1920s; then Chloroquine replaced it by the 1940s, while Artemisinin had been found in the 1970s. In Sudan, the pharmaceutical policy started to change only in 2004 to introduce Artemisinin, but it was expensive and not readily available in the market. Since 2010, the Sudanese Ministry of Health in cooperation with the Global Fund managed to distribute Artemisinin free of charge. However, as shown by the Medical Assistant's question about the researcher's preference, it appeared that all three medications were still distributed in Heiban and Artemisinin sold there.

The impact of accessibility, not only in relation to prescription practices including dosage, can be seen through another example. In an interview with a nurse in the medical supply section of the Secretariat of Health, he said that in the 1990s and up to 2000, they used to prescribe half the dosage they knew was needed. For example, amoebic dysentery is treated with the antibiotic Flagyl (Metronidazole), which needs to be taken as two tablets or as 5 cc syrup every six hours, while they administered only one tablet and 2 cc, respectively, while children from 0 to 6 years were given 1 cc.⁸⁰

79. Interview with R., Heiban, 13/4/2011, male, 40, Captain in the SPLM/A, responsible of drug supplies during war (1989–1995).

80. Interview with S.H., Kauda, 14/4/2011.

Laboratory

While her experience with malaria put the researcher in contact with diagnostic and prescriptive practices, it also opened a way into the laboratory as a site for participant observation. Work for one week there started on a Saturday morning at 9 o'clock. Apart from the registrar, the lab technicians H.S. and Kh., as well as the new assistant Sh.A. formed the staff of the laboratory. H.S. showed the researcher the equipment, solutions and dyes, one microscope, vessels with alcohol, test tubes, two long tables and two chairs. On one of the tables stood many water bottles filled with colourful liquids, under the table there were cartons with a one-month supply of solutions. They gave the researcher a chair to observe their work and try to learn.

The registrar, who also functioned as a supervisor of the workers in the health centre, organised patients' names by numbers after the principle first-come, first-serve, although emergency cases had priority. Sometimes the registrar allowed admittance based on her social relationship with the patient, either by giving priority numbers to specific persons or giving no number which means no payment. This is what she tried to do for the researcher when she came to the lab as a patient. The patients referred from the health centre's clinic carried a small referral paper, but most of them came directly to be tested for malaria without referral from a nurse or the Medical Assistant. In the lab, cases were treated regardless of referral method and malaria tests were done invariably as it was a disease expected to afflict everyone.

The malaria tests were Sh.A.'s job, while H.S. and Kh. tested for other diseases. For all of them, work at the health centre was not the only job. H.S. and Kh. worked together with the Medical Assistant in the latter's private clinic in Heiban market. Kh. had not been integrated, so he spent most of his afternoons in the private clinic, but helped the health centre in the mornings in the lab and with nursing. Sh.A. was also working in the vaccination office at the health centre two days per week, among them Thursday, the market day in Heiban. So the work division changed on these two days when they had the highest patient attendance, as H.S. or Kh. had to cover for Sh.A.'s work, and H.S.'s status as integrated staff made it more probable that he do it.

During her time there, the researcher learned from H.S. how malaria tests are done when participated in this task during the week. He explained that field stain A & B is used, whereby they are put in two separate glass troughs on the long table, each with water in the cut lower part of a former mineral water plastic bottle next to it. The test itself started when Sh.A. made a needle prick in the patient's thumb and put a drop of blood on a glass slide, at which point the researcher took over the test procedure. The researcher had to take the glass slide horizontally from Sh.A. and to put it into the trough with field stain A, count from 1 to 4 while constantly moving the slide up and down. Then the researcher had to put it into the water for very short time, continue to the trough with field stain B with the same procedure and finally take it to the next short water bath. After that, the researcher placed the slide for drying on an old broken test tube rack, which held thick cotton swabs in the shade of the grilled window's sill. During the work on the next slide, the first one dried, after which the researcher passed it to Sh.A.

who looked at the blood sample under the microscope to detect signs of malaria parasites. In the researcher's last three days in the lab, Sh.A. had days off from the lab and Kh. was in the private clinic, so H.S., reassured of her work, let her continue and the researcher was testing two cases alone, including the microscope level.

However, the seeming clarity of the laboratory work and its staff's knowledge turned out to be parallel to other beliefs in healing as well. One day Sh.A. invited the researcher after work to go with her to church. In an interview, the researcher learned more about her background.⁸¹ Sh.A. was 28 years old. She had been schooling in Al-Hasahisa city where she lived during the war, in the beginning attending a First Aid course offered by the Red Crescent, 4 months theory and 6 months practical, then a nursing course for 6 months, also conducted by the Red Crescent. She continued training in nursing in Omdurman for 3 months at the Tabita Butrus Nursing School, but the school stopped. After that, in 2008, she came to the Heiban Health Centre in a job as an immunisation technician. Although the health centre needed this position, she was initially not integrated in the Ministry of Health, but got her salary from the resources of the health centre.

During her work at the health centre, Sh.A. also attended workshops on nutrition, environmental sanitation and primary health care. These workshops lasted between 3 to 5 days and were sponsored by organisations that she could not specify during the interview, but she kept the workshop materials that were the main reference materials she reviewed from time to time. During these years she worked in the vaccination office. In March 2010 she completed a health education course about malaria (symptoms, testing, treatment, prevention, health communication), designed by the National Malaria Control Programme for technicians in the health sector in high prevalence areas. The course lasted three months, hosted by the Al-Fula Academy for Public Health and Nursing in western Kordofan. Sh.A. used to bring one of the reference books from that course with her to the lab, and sometimes she compared the image of malaria parasites under the microscope and pictures of malaria parasites in this book. In this way, the door was opened for additional learning-by-doing in the lab. Sh.A. wanted to learn the work of a lab technician, who, as she said, "has more opportunities in the labour market than immunisation technicians". The latter is merely seasonal and linked to vaccination campaigns during the year on specific days of the week in the health centre. Hence, she was free to give a hand in the lab, which needed her assistance. Thus, Sh.A. continuously did two different jobs in the health centre, but she was later only integrated as an immunisation technician as stated on the certificate. Her other diverse work experiences were dismissed.

The researcher asked her what else she believed could help in healing or treatment in addition to the reference texts that she used after her studies. She said that the priest can heal as well, and she invited me to a healing prayer for one of her uncles, who had been involved in a car accident. He was treated in El Obeid hospital but was still in a critical situation. While being

⁸¹ Information on Sh.A. is based on several conversations in Heiban in November 2010 and April 2011.

strongly embedded in biomedical practices, she was, based on her Christian background, also active in church and believed in the priests' power to heal, seeing no contradiction between those approaches.

Reproductive Health Unit

The researcher spent another week in the reproductive health unit with three midwives, two of them not integrated. From her observation, there were variations in the educational level including basic reading and writing skills. In an interview, M.Is., the youngest midwife with 16 months training in the Kadugli Midwifery School and 18 months' work experience in the unit, explained difficulties in work with lack of commitment to attendance while the workload is high.⁸²

The researcher also observed that the difference in educational levels and erratic attendance or a clear work schedule affected writing reports, both in quality of content and regularity. Therefore, the midwives in the Heiban Health Centre mostly did not record the date of the registration of women, the name of the midwife who registered the information and the date of issue of the report. According to the public health system applied in Heiban locality, put in place only in 2009, the unit was expected to produce two kinds of report. One was a monthly report with details about maternal health, based on the so-called Daily Registration for Outpatient Clinics for More Than 5 Years, designed by the Federal Ministry of Health's National Information Centre. This form was intended to record the following information:

- number (ID)
- patient's name, age, sex, residency
- status of visit (first-time or follow-up)
- for women between 15 and 49: marital status, pregnancy (yes/no)
- reason of visit (antenatal care, tetanus vaccine, postnatal care, family planning)
- complaint / diagnosis
- treatment / notes

82. Interview with M.Is., Heiban, 19/11/2010.

The other report was the collection of antenatal cards, which account for the details of pregnancy follow-up and details of confinement. These two types of report should be delivered by all health centres and units to the Coordinator of Reproductive Health in Heiban Locality, E.K., in a meeting on the 25th of every month under the shade of a tree in the Heiban Health Centre.

In addition, another report form was expected from the Decentralised Health System Project, written by the Medical Assistant or a nurse in the health centre after he or she had received weekly reports from all health centre units and offices. In this report the midwives should provide information about maternal care, number of births and deaths, numbers of pregnant women and infants, in addition to vaccinations and post-natal growth follow-up information provided in conjunction with the vaccination and nutrition offices. All three reports should be submitted by all health centres and health units to A.Z., the Director of Health Services in Heiban Locality.

This reporting procedure describes the formal requirements, while practices varied widely in some cases. In the Heiban Health Centre, there was no coordination in reporting and follow-up of referred pregnancy-related cases between nurses in the vaccination office, the nutrition unit and midwives in the reproductive health unit. The reproductive health coordinator confirmed the problem of report writing and added that "there were some mistakes extending to the point of not registering the death of pregnant women or infants".⁸³ She also mentioned a report submitted to the Director of Health Services in Heiban Locality that she had found by accident in the Director's absence when she had received this report on his behalf. The report delivered by the midwives of the Heiban Health Centre was not only incomplete in comparison with a report by the nurses of the same health centre, it should have been delivered through her. She speculated that they were afraid of her or they didn't know how to register correctly. The latter would be the case despite attendance at a workshop she had organised with the UNFPA in May 2009 for all midwives in the locality to build their capacities, especially for those not competent in writing and reading. After this workshop, the allocation of midwives to each centre and unit was organised in such a manner that an illiterate midwife or one without good writing and reading skills yet with long experience as a midwife would be coupled with an educated midwife who was less experienced in the field of midwifery. In case of the Heiban Health Centre, however, this method of allocation clearly created a tendency to dodge responsibility for producing regular reports.

Notwithstanding these shortcomings, there still was a continuous demand for midwifery services at the health centre; for example, there were 124 births in October 2010 alone. In such a situation of urgently needed services and composite, multi-faceted professional backgrounds, health practitioners and their designations obviously differed from the standard definitions and requirements of medical professions, as in the WHO 2012 manual. This reference manual differentiates midwives and auxiliary nurse midwives (ANMs), and defines the latter to

have some training in secondary school. A period of on-the-job training may be included, and sometimes formalised in apprenticeships. Like an auxiliary nurse, an auxiliary nurse

83. Interview with E.K., Heiban, 26/04/2011.

midwife has basic nursing skills and no training in nursing decision-making. Auxiliary nurse midwives assist in the provision of maternal and newborn health care, particularly during childbirth but also in the prenatal and postpartum periods. They possess some of the competencies in midwifery but are not fully qualified as midwives. (WHO 2012, Annex 1: 2)

The WHO defines a ‘midwife’ as

a person who has been assessed and registered by a state midwifery regulatory authority or similar regulatory authority. They offer care to childbearing women during pregnancy, labour and birth, and during the postpartum period. They also care for the newborn and assist the mother with breastfeeding. Their education lasts three, four or more years in nursing school, and leads to a university or postgraduate university degree, or the equivalent. A registered midwife has the full range of midwifery skills. (WHO 2012, Annex 1: 3)

During the situation of emergency the researcher encountered, however, nurses’ and midwives’ practices of patient case management must be traced in more detail, allowing analysis of the conditions of medical practices and how the health practitioners deal with the lack of resources and lack of political and administrative stability during and after the war. This can be approached, for instance, through staff portraits in terms of studies and work experiences, as will be shown from interviews with the nurse M.M. and with E.K.

A scene described in the interview with M.M.⁸⁴ shows the radical difference between procedures taught within the framework of medical training and the kind of solutions necessarily found in medical practice under emergencies. M.M. is a nurse who studied at the Ḥakīma Ya‘qūb School in 1996 and then worked in a health unit in Saraf Al-Nila. One day he received a call to help in delivery. He found a woman lying on the ground with a broken pelvis and about to die. Without medical equipment, M.M. got the idea to use blacksmithing tools, such as nippers and pliers, so he called for a blacksmith to bring his tools. They made a fire and chased everybody else out of the room in order to be alone with the pregnant woman in despair. With no other option, M.M. broke the head of the embryo to keep the mother alive and then dragged the dead foetus out of her. The woman stayed indeed alive with a broken pelvis, but later successfully delivered another baby.

In more detail, the variety of knowledge acquisition and experience can be seen from my interview with E.K.⁸⁵ She attended the midwifery school in Kadugli in 1986, having been chosen together with another girl by her community from Al-Azrag village. The study comprised two years’ theory and six months’ practice in a health centre, which she completed in Dilling. After her graduation, her village was a hot war zone, so the Ministry of Health assigned her to work in Kadugli, but she demanded to be sent to Heiban, which was much closer to her village. Heiban city was at that time under governmental control, and it was her clandestine

84. Interview with M.M., Heiban, 25/11/2010.

85. Interview with E.K., Heiban, 26/04/2011.

plan to work with the SPLM/A brigade in Al-Azrag.

While in Heiban, SPLM/A members from her village Al-Azrag came one night after they had heard that the two girls had completed the midwifery school yet had not returned to them. They blamed the girls for being ‘bourgeois’ and in agreement with the government, because they had not come back. According to E.K., she replied:

I came from Kadugli to be closer to the boundary with you, how I cannot come back, but I need time to find my way back, trust me here.’ Having been convinced they left, but in the early morning people loyal to the government came and asked: ‘are you still there, we thought the *anyanya al-khawarij* [Anyanya outlaws] kidnapped you?’. This stress went on like this for three days during my work from one small village to the next, until the end of 1988 when I was in Al-Mak village where I found a way to get out. This village got attacked by the government because I found my way through it.

In Al-Sirafi she constructed a *rakoba* (wooden sun shade) to start working, only equipped with her bag from the school without new medical supplies. She advised her patients to make drinks from some plant roots. If these drinks did not have the desired effect, she referred them to plant healers, but since any person in some way was using plants for treatment, she had to build up information about who had better experience and to whom she would refer cases. Most illnesses to be treated were urinary tract infections, for which she used leaves of the Al-Habila tree (*Combretum hartmannianum*) as a drink, and smoke from burning its wood to treat infections in or around the vaginal area. The bark of several other trees was also used for cleaning infections, for instance, from a tree called *lalob* (*Ballanites aegyptiaca*, Soapberry tree), grinding the bark in small pieces to clean clothes and body. From other trees, leaves were taken for cleaning, such as cedar leaves, washed and soaked in water, then applied to the body. E.K. also used to apply natron, a naturally occurring salt normally used to treat heartburn, for pregnancy-related symptoms such as vomiting, dissolved in a small amount of water with an addition of lemon juice if available, and mixed for drinking. Fruits of the Carob tree (*Ceratonia siliqua*) were eaten to stop bleeding during pregnancy or after delivery.

However, another delivery suggests the *ad hoc* character of knowledge and experiences that marked the background of many of Heiban’s health practitioners and requires a differentiated look at them beyond the certification found on paper and in the framework of fixed definitions. E.K. detailed one of the emergency cases during war, when a dead embryo had stayed for four days in the mother’s womb and described how she dealt with the situation:

His hand was yellow, and I dragged it, his hand was ripped off from the arm by my hand, also the other hand and his head could not be dragged out this way, so I used a knife to cut and then I dragged out the dead embryo [piece by piece]. After that I took out the placenta, then I gave her [the mother] a beverage from the mahogany tree to drink, also two other drinks, one from a tree whose name I do not remember, the second was normal hot water. Then I strongly massaged her body with hot water.

Chapter 4: Medical Drug Supply, Public Administration and Markets

Introduction

This chapter discusses the dynamics of contestation over resources affecting the interaction between health institutions. It considers that health institutions are different on the level of organisation and formalisation in the health system, respectively. For example, the dynamics of resource distribution vary in the interaction between the Federal Ministry of Health and South Kordofan Ministry of Health, humanitarian organisations supplying medicine, private health practitioners and private drug stores. The latter's role in the overall medical supply is the focus of this chapter.

The chapter has two sections. The first one discusses human resources, production of health information and resources of medical supply provided by the state-based formal health sector. It presents critical perspectives on the contested resources in the relationship between the Federal Ministry of Health and South Kordofan's Ministry of Health, as well as between the two partners in South Kordofan's government.

The second section discusses private health practitioners, mainly drug stores, *'ilajāt baladiyya*⁸⁶ traders and private clinics during and after the war in Heiban Locality. Their role in the healing trade and medical supply and their contestation over resources affected the interaction between them, which will be analysed through a look at markets as social spaces and their boundaries. The boundaries between different professions and within them are not just part of the market organisation but also of inclusive and exclusive processes of production and protection of knowledge and resources. In these processes, the boundary criteria are often made explicit, such as the three dichotomies often used to denote actors in healthcare provision, namely formal or informal (type of institution or institutional knowledge), public or private (type of services or resources) and biomedicine/global health or local healing practices / *'ilajāt baladiyya* (type of practices or type of goods). Other boundaries are associated with ethnic identification, commercial interests, political interests or religious conviction. As will be shown in the following discussion, making or crossing these boundaries is dynamic, not necessarily following static concepts or dichotomies, but interactive in the contestation over resources between health institutions.

86. *'ilajāt baladiyya* ('local healing') means healing by one or a combination of herbs, bones, dry parts of animal bodies, and stones; it is therefore often connected to a specific environment (i.e. local).

Medical Drug Supply and Public Administration

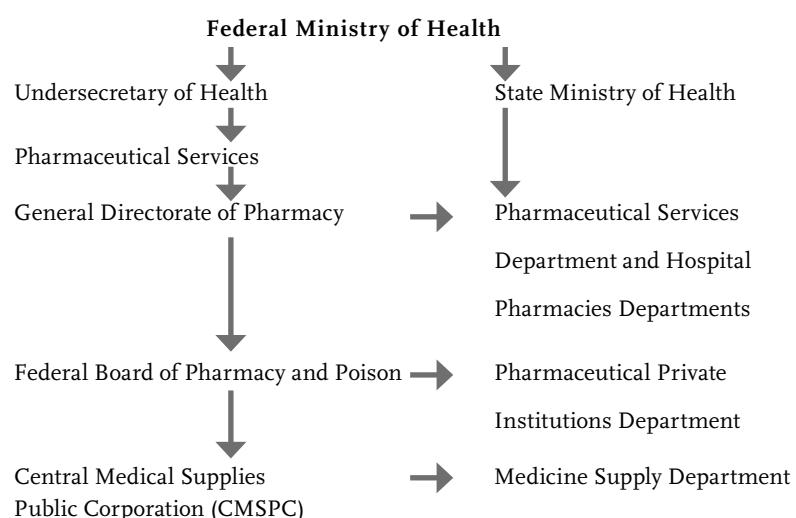
Formal Structure of the Public Pharmaceutical Administration

In Sudan's general public health system, the pharmaceutical services are part of the decentralisation health policy, which aims at delegating authority and resources from the centre to the states. The following quotation outlines the responsibilities in the framework of this policy:

The FMOH [Federal Ministry of Health] is responsible for formulating national policies, ensuring supervision, development and management of human resources, and managing international relations. The finance and management of tertiary-level institutions is also remitting of the FMOH. The SMOH [State Ministry of Health] is responsible for planning, administration, and financing of primary health care and first referral (secondary) services within the framework of the national policies. (Said 2010: 15)

Within this framework, the medical drug supply for the urban hospitals is part of the Federal Ministry of Health's responsibilities, while the State Ministry of Health is responsible of rural hospitals, health centres and health units. The detailed organisational structure of pharmaceutical services is shown in the following organigram constructed on the basis of Said (2010: 36) and the Pharmaceutical Report from the General Directorate of Pharmacy (2012: 23). The parallel organs in the decentralised system are shown side-by-side; the left-hand side refers to the federal level and the right-hand side to the state level.

Figure 6: Organisational Structure of Pharmaceutical Services, Ministry of Health



Source: Said 2010: 36; General Directorate of Pharmacy 2012: 23.

A closer look at the division of responsibilities allows a further understanding of the intended division of labour between the federal and state levels, as well as giving a picture of the kind of decentralisation intended in the provision of pharmaceutical services.

At the federal level, there are three organs of decision-making, which function as legislators, implementers and suppliers, respectively. The General Directorate of Pharmacy is responsible for planning, formulating and evaluating policies for the pharmaceutical sector as well as updates of the essential medicine list and what processes to follow, such as the mechanisms and procedures to be applied. The Federal Board of Pharmacy and Poison is the controlling body of pharmaceutical products with the responsibility to update and implement regulations that guide registration, manufacture, import, delivery and promotion of pharmaceutical products. The Central Medical Supplies Public Corporation (CMSPC) is responsible for the provision of essential medicine and medical supplies at an affordable price for all public sectors.

At the state level, with the example of South Kordofan, the Ministry of Health has four departments of pharmaceutical services. The Pharmaceutical Services Department and the Hospital Pharmacies Department report to the General Directorate of Pharmacy, while carrying the same function on the state level. Similarly, the Pharmaceutical Private Institutions Department and the Medicine Supply Department are linked to the Board of Pharmacy and Poison and the Central Medical Supplies Corporation, respectively.

While authority and functions were delegated from the federal to the state level according to the decentralisation health policy, was there a corresponding distribution of resources from the centre to the states?

Macro-economic studies by the World Bank suggest that there was a steady increase of transfers from the federal to state budgets at least since to 2000,⁸⁷ the shift of the responsibility for basic public service delivery to states was formalised in the Interim National Constitution (World Bank 2009: 15). However, the overall expenditure on social services, including health, remained at a very low level⁸⁸ and mostly spent on salaries and other recurrent expenditure, not on the development of new facilities and infrastructure (World Bank 2007: 28).⁸⁹ In addition, "fiscal and decision-making autonomy of states and localities" remained limited (World Bank 2007: 59).

87. Statements to this end can be found in the public expenditure review of 2007 (World Bank 2007), The 2008 Budget Performance review (World Bank 2009) up to the review of Sudan's 2013 budget (World Bank 2013).

88. Sudan National Human Development Report 2012 showed the expenditure on the social services was still 16.6% of current government expenditure in 1999 but declined to 2.3% in 2009 (UNDP 2012, 137). Social services and water supply were furthermore only 5% of total federal development expenditure in 2008 (World Bank 2009, 19).

89. The same report noted that "assessing the appropriate balance between recurrent and capital expenditure will require more detailed sector-specific analysis than is currently available" (World Bank 2007, 28).

The researcher will discuss this question in the next sections through observations about pharmaceutical resources and services, on human resources in some detail, mainly pharmacists and assistant pharmacists, resources for production of health information and resources for medical supply.

Human resources

The availability of pharmacists and assistant pharmacists in public health services indicates whether there is equitable sharing of resources between different states. Tables 5 and 6 show South Kordofan placed in the lowest group in terms of the availability of pharmacists and assistant pharmacists in the public sector relative to population size. For instance, approximately five assistant pharmacists were available for every 100,000 of the rural population in the best staffed state, while the comparable figure for South Kordofan was only one. This is very noteworthy as the assistant pharmacists are the main providers of medical supplies in this state, as the researcher will document further below.

Table 5: Availability of Pharmacists per State, 2007

State	Number of Pharmacists	Population (in 1,000)	Availability indicator for each 100,000
Red Sea	22	740	2.97297297
River Nile	22	1026	2.14424951
Gezira	75	4130	1.81598063
Khartoum	109	6203	1.75721425
Sennar	19	1404	1.35327635
Kassala	21	1752	1.19863014
Blue Nile	8	783	1.02171137
White Nile	17	1762	0.96481271
North Kordofan	22	2424	0.90759076

Gedarif	16	1843	0.86814976
Northern State	4	654	0.61162080
South Darfur	12	3514	0.34149118
South Kordofan	4	1704	0.23471784
North Darfur	4	1821	0.21965953
West Darfur	3	1863	0.16103060

Source: General Directorate of Pharmacy 2007: 50 [In Arabic].

Table 6: Availability of Assistant Pharmacists per State, 2007

State	Number of Assistant Pharmacists	Population (in 1,000)	Availability indicator for each 100,000
Red Sea	39	740	5.2702703
Blue Nile	29	783	3.7037037
Khartoum	188	6203	3.0307915
River Nile	31	1026	3.0214425
Gezira	119	4130	2.8813559
Sennar	39	1404	2.7777778
Northern State	15	654	2.2935780
Gedarif	40	1843	2.1703744
Kassala	36	1752	2.0547945
North Darfur	25	1821	1.3728721
White Nile	22	1762	1.2485812
South Kordofan	15	1704	0.8802817
South Darfur	26	3514	0.7398976
North Kordofan	15	2424	0.6188119
West Darfur	6	1863	0.3220612
Southern states	22	n/a	n/a
Federal	175	n/a	n/a
Total	842	n/a	n/a

Source: General Directorate of Pharmacy 2007: 57 [In Arabic].

These tables show that public pharmaceutical services in South Kordofan were understaffed. There was an imbalance between the devolution of authority and the allocation of human resources. If, in framework of the decentralisation health policy, the State Ministry of Health is responsible for rural hospitals, health centres and health units, how could the government of South Kordofan assume this responsibility for their citizens under such extreme constraints?

While this shows a contestation over resources between the centre and the South Kordofan State, another question is if such contestation also existed within South Kordofan. This will be discussed below with regard to information as a resource.

Production of Health Information

The information system and official reports are not only a method of communication between different levels of authority but also important resources for planning health service distribution and for managing supply and demand in private and public health services.

The researcher will present two available reports about medical supply in South Kordofan, one from the federal pharmaceutical services in Khartoum (2007), the other from state pharmaceutical services in Kadugli (2011). While the researcher collected the latter during fieldwork in Kadugli, she received the former from the National Health Information Centre in Khartoum. Impressions from the researcher's visits not only indicated a centralisation of resources in the health information system, they also hinted at the reasons behind the wide gap in information availability and quality between Khartoum state as the capital of Sudan and other states.

At the Federal Ministry of Health in Khartoum, the researcher was referred by the receptionist to a section of the National Health Information Centre and found its offices well equipped. The researcher was introduced to the employee responsible for the report archives and provided health reports of the years 2007 and 2009. On a later visit, the researcher also got the report of 2011 from what seemed to be well-organised filing cabinets. The researcher asked about pharmaceutical statistics and was referred to the pharmacist responsible for statistics in the General Directorate of Pharmacies.

The pharmacist stated that there was only one pharmaceutical statistics report from 2007 and discussed the existing health information system.⁹⁰ The information flow emanates from all the states through annual reports from their statistics offices to the National Health Information Centre, both general health and pharmaceutical reports. Each state should ideally have a statistical office for pharmaceutical services, but the pharmacist added:

90. Interview with M.F., Khartoum, 6/1/2011; head of the Statistical Office at the General Directorate of Pharmacies at the Federal Ministry of Health.

We are facing the situation that some states do not have personnel or do not have the equipment for a statistics office, also sometimes there is no stable [telecommunication] network to call the Ministry for information, that creates the problem of infrequent regional reports [meaning states other than Khartoum].

This was not a problem with Khartoum's State Ministry of Health, as there was more direct communication with the statistical office at the General Directorate of Pharmacies, being located in a neighbouring building and as well-equipped and as well staffed as the national centre itself.

In fact, the 2007 report the researcher had collected was supposed to allow comparison between the study area and other states in Sudan concerning pharmaceutical services, but invariably stated "information unavailable" As far as South Kordofan was concerned. The two tables below (Tables 7 and 8) from the 2007 report show that South Kordofan was the only state without information on the coverage of medical drug needs in health facilities, in hospitals and health centres alike, whereas full information about medicine supply was available for North Kordofan, whose capital El Obeid is 175 miles/ 282 km away from Kadugli, the capital of South Kordofan.

The unavailability of information did not only stem from geographical distance that made audits and follow-up difficult with respect to the reporting organs at the state level in the official reports, it also showed that the distribution of resources from the centre to states such as South Kordofan was inequitable. This situation of marginalisation not only determined the unequal resource distribution but was also exacerbated by the distribution of authority within the framework of the decentralisation policy that did not take into account the unavailability of public service infrastructure in post-war South Kordofan. As a result, within the governmental system responsibility for inadequate reports was put on the state and its insufficient retrieval and communication of information or data.

In fact, the State Ministry of Health in South Kordofan did not have a pharmaceutical information office. It had an office of health statistics and an epidemiological office producing statistical data about epidemic diseases. None of these offices included pharmaceutical data systematically in their data collection and reports. Such data were rather provided as a by-product for different health sections and health programmes, for instance the National Malaria Programme or the WHO, according to occasional funds.

When the researcher visited the Kadugli office in September 2010, the working environment in the statistical office also showed a clear infrastructural difference compared to Khartoum. There was one medium-sized table for a young man, the assistant to the statistics officer, and four young women, data entry trainees, working on one computer. When the researcher asked about health statistics for South Kordofan, he pointed to dozens of unorganised files on large tables around them and one grey filing cabinet.

Table 7: Medical Supply for Hospitals in Sudan, 2007

State	Hospitals	Covered Hospitals	Percentage	Covering order
<i>Khartoum</i>	25	25	100	<i>Revolving drugs fund (RDF)</i>
Red Sea	18	18	100	Central Medical Supplies public corporation - RDF in the state.
Northern State	26	26	100	Central Medical Supplies public corporation
River Nile	23	23	100	Central Medical Supplies public corporation - RDF in the state.
White Nile	20	20	100	80% Central Medical Supplies public corporation - RDF in the state+ 20% Health insurance
Blue Nile	9	9	100	30% Central Medical Supplies public corporation + 67% RDF in the state + 3% Organizations
Sennar	20	20	100	Central Medical Supplies public corporation - RDF in the state.
<i>North Kordofan</i>	21	21	100	<i>64% Central Medical Supplies public corporation - RDF in the state+36% Health insurance.</i>
North Darfur	13	13	100	Central Medical Supplies public corporation - RDF in the state + Organizations
West Darfur	4	4	100	Central Medical Supplies public corporation - RDF in the state + Organizations

Gezira	51	48	94	Central Medical Supplies public corporation - RDF in the state.
Gedarif	17	16	94	Central Medical Supplies public corporation - RDF in the state.
Kassala	10	9	90	Central Medical Supplies public corporation - RDF in the state + pharmaceutical administration in the state.
South Kordofan	10	0	0	Information unavailable
South Darfur	0	0	0	Central Medical Supplies public corporation - RDF in the state

Table 8: Medical Supply for Health Centres in Sudan, 2007

State	Centres	Covered Centres	Percentage	Covering orders
Khartoum	144	144	100	Revolving drugs fund (RDF)
Red Sea	31	31	100	Central Medical Supplies public corporation - RDF in the state 73% + health insurance 27%
Gedarif	41	41	100	Central Medical Supplies public corporation - RDF in the state
Northern State	63	63	100	Health insurance
River Nile	98	98	100	Central Medical Supplies public corporation - RDF in the state
White Nile	51	51	100	50% CMS public corporation - RDF in the state + 30% health insurance + 20% Organization
Blue Nile	20	20	100	Health insurance
Sennar	28	28	100	Central Medical Supplies public corporation- RDF in the state
North Darfur	12	12	100	Central Medical Supplies public corporation- RDF in the state+ Organizations.
Kassala	60	53	88	Central Medical Supplies public corporation - RFD in the state + pharmaceutical administration in the state
North Kordofan	45	38	84	22% Central Medical Supplies public corporation - RDF in the state + 64% Health insurance.

Gezira	189	153	81	Central Medical Supplies public corporation - RDF in the state 29% + 71% health insurance.
West Darfur	10	4	40	Central Medical Supplies public corporation - RDF in the state+ Organizations
South Darfur	10	2	20	Central Medical Supplies public corporation - RDF in the state+ Health insurance+ Organizations.
South Kordofan	49	0	0	Information unavailable

Source: General Directorate of Pharmacy 2007: 31 [In Arabic].

As was shown in previous chapters, the production of health information was not only a centre-state problem, it also affected by the general administrative contestation inside the state.

The researcher highlighted in the introduction that the geographical and political boundaries of South Kordofan/Nuba Mountains were contested as expressed in the unstable politics of naming (Komey 2005: 181; Ibrahim n.d.: 8). Accordingly, the 'South Kordofan' that appeared in official reports actually describes an entity that was never consolidated and integrated, and the numbers hide heterogeneous and contradictory processes of data production and administrative division.

The case of the official pharmaceutical reports illustrates yet again the problem of integration of former war parties into the government system. The depth of the integration problem was not only related to the production of numbers, but had implications for administrative divisions before, during and after the census, wherein both government partners followed their own system that existing during wartime.

The constant administrative challenge of the 'partners in government' also affected the way in which information for the provision of health services was produced, shared or contested between the two sides. The statistical information provided to Khartoum after 2005 continued to focus on the government-controlled areas and often lacked essential information on the SPLM/A-controlled areas. This situation continued until late 2011, when the first pharmaceutical report for 'all of South Kordofan' was produced in Kadugli, although war-affected areas were obviously not accessible. This inaccessibility was neither mentioned in the report nor in direct communication with the Director of Pharmaceutical Services in Kadugli between 2011 and 2013. In the general health sector reports of 2005 to 2010 that the researcher had reviewed, the SPLM/A or so-called 'chosen' areas mostly appeared only through information on organisations who were active there, while there were no details on health workers or other human resources, or medical supplies.

The complex intertwining between the general politics of numbers and health care provision becomes evident through the impact of the contested census data on the polio vaccination campaign in Heiban Locality in 2011. Heiban's Administrative Officer, belonging to the SPLM/A and integrated within the framework of the CPA's power sharing modalities, explained the administrative challenges facing the provision of health services, especially health information, with the words "it is peacetime but there is no security with the partner".⁹¹ He explained this with reference to the population census, which created multiple conflicts between the two political partners (the SPLM/A and the NCP). In a situation of political tension and insecurity, he had to save the files of the population census for Heiban Locality in his house. As the preliminary stage for the state elections in 2011, the geographic distribution of population influenced the definition of electoral constituencies, both partners worked on numbers favourable to their own political constituencies.

91. Interview with Heiban's Administrative Officer, Heiban, 30/11/2010.

Table 9: Administrative Units and Population Distribution in Heiban Locality, 2010

Name of administrative unit	Population	
	Number	Percentage
Heiban Administrative Unit	32,370	15.3%
Kauda Administrative Unit	59,213	28.1%
Debbi Administrative Unit	28,720	13.6%
Umm Durdu Administrative Unit	54,155	25.5%
Al-Azraq Administrative Unit	37,016	17.5%
Heiban Locality Total	211,474	100%

Source: South Kordofan State Population and Households Census, 2010

Table 9 lists administrative units and population distribution in Heiban Locality; the source is the official South Kordofan State Population and Households Census 2010.

However, a statement by Heiban's Administrative Officer says that the SPLM's census, based on its *boma* system, showed the population of the Administrative Unit Heiban to have been 36,983 people on 15 June 2010. A simple calculation shows a difference of 4,613, a significant number considering that both the NCP and the SPLM declared their own state governor candidates as winners by a similar margin.

As has been shown in detail in chapter 2, these different numbers directly affected the provision of pharmaceutical services, such as during the polio vaccination campaign in 2011. It was planned to cover 4,000 children in Heiban Locality, which constituted already only 85% of the target group. In the end, only 48% of these children were reached amidst lack of cooperation and integration of essential personnel.

In an interview with A.Z., Director of Health Services in Heiban Locality, he described this as a "problem of wrong planning that was using a top-down approach" where political considerations dominated the process.⁹² The number of citizens was most of all considered

92. Interview with A.Z., Heiban, 20/04/2011.

for the purpose of election, not the numbers for targeted public service provision. Similarly, main resources of both parties were earmarked for the election in 2011.

This controversy surrounding the census and the election directly affected the planning of resource allocation for the vaccination campaign. Moreover, the manager of the campaign and Deputy Administrator of Vaccination in the State Ministry of Health, chose as his temporary headquarters the office of the down-sized UNICEF branch in Kauda, which had been established during the war as the centre of the cooling chains for vaccination and of other medical supply. He thus implicitly avoided managing the campaign either from his office in Kadugli or from the offices of the Secretariat of Health in Kauda, being aware of the politically charged situation.

In an interview, he described how the campaign was planned for six teams to cover the area, based on the population numbers of the official census. However, it was soon discovered that the actual population would need the work of 13 teams and that the campaign had to be extended by one day to cover 2,000 'additional' children.⁹³ This situation was addressed through individual initiatives of Ministry officials, nurses and other health workers in the area, who mobilised their own and their organisations' resources, such as private and NGO cars, to provide *ad hoc* solutions to a shortage caused by inimical political contest.

Resources of Medical Supply

Corresponding to the shortcomings of human resources and health information, the actual medical supply in South Kordofan showed significant gaps.

Once again, the formal pharmaceutical supply system in Sudan, as described in the 2007 report, suggests a consistent and complementary interaction of different actors. Three sectors were distinguished, public and private as paid providers, and non-paid, non-profit providers. The first comprises of the Central Medical Supplies Public Corporation (CMSPC), which is the largest supplier organisation and the national centre for selection, procurement, storage and distribution of medicines and medical supplies to the public and private sector, and the Revolving Drug Fund (RDF), which started in Khartoum State and extended to other states. The private sector includes importers and local manufacturers, pharmaceutical factories and companies; most of the companies are agents of international companies and mostly registered in Khartoum.⁹⁴ The non-profit sector consists of national and international organisations.

Those three sectors supply medicine through different types of pharmaceutical channels. Pharmacies attached to hospitals or health centres exist in urban and rural areas and are related to all the three sectors. Community pharmacies are the main source of drugs without

93. Interview with Deputy Administrator of Vaccination in South Kordofan, State Ministry of Health, Kauda, 17/04/2011.

94. The total number of registered companies in 2005 was 283.

prescription, as well as providers of pharmaceutical consultancies about side effects of drugs for chronic and common diseases. They are also part of the private sector in coordination with the Ministry of Health in the planning and organisation of sustainable availability. They mostly cover urban areas, with the highest coverage in Khartoum State (72%), medium coverage in Gezira State and low coverage in Red Sea State. These pharmacies offer services for 15% of the patients in hospitals, competing with hospital pharmacies, especially with a recent increase and successful operation of community pharmacies. The total coverage in Sudan in 2007 was 0.44 per 10,000 of the population, which meant that one pharmacy served 23,000 people (General Directorate of Pharmacy 2007: 23 [In Arabic]). Drugs stores not only provide essential medicine in most states, especially in rural areas, they are also the main source of medical supplies in Blue Nile State, White Nile State, North Kordofan State and South Kordofan State.

In South Kordofan, the number of community pharmacies was 14, compared with 923 in Khartoum and 55 in North Kordofan, which indicates that South Kordofan is one of the states with the lowest access to pharmacies. However, this limited medical supply from the public and the non-profit sector was increasingly compensated for by private drug stores, of which South Kordofan registered the highest number in Sudan (see Table 10).

This turn to private services was not just a reaction to the failure to provide adequate public supply. There were several other developments that changed and commercialised the role of organisations that had been central in medical supplies during and after the war, especially in the SPLM/A-controlled areas (more details in Chapter 2). Therefore, the doors were opened for private drug stores to meet the medicine demand through local markets. A new labour market for health workers also emerged, and, as the researcher will show in what follows, the RDF merged more and more with these dynamics of commercialisation and marketisation of medical drug supply. However, the provision of medicines remained unstable for large parts of the populations and was full of gaps.

Table 10: Distribution of Pharmacies and Drug Stores in Sudan, 2007

State	Number of Pharmacies	Population (in 1000)	Availability indicator for each 100,000	Number of Drug Stores
Khartoum	923	6203	14.88	41
Red Sea	60	740	8.11	26
River Nile	49	1026	4.78	20
Gezira	191	4130	4.62	51
Northern State	27	654	4.13	37
Kassala	64	1752	3.65	77
White Nile	62	1762	3.52	77
Sennar	45	1404	3.21	55
North Kordofan	55	2424	2.27	115
Blue Nile	17	783	2.17	84
Gedarif	38	1843	2.06	36
South Darfur	40	3514	1.14	139
South Kordofan	14	1704	0.82	150
West Darfur	14	1863	0.75	54
North Darfur	13	1821	0.71	94

Source: General Directorate of Pharmacy 2007: 62 and 65 [In Arabic].

In the following section, the researcher will trace how these gaps were filled in Heiban through the usage and extension of private medical supplies, both by turning to commercial services and through the opportunistic use of non-governmental sources of supply.

Market dynamics in Heiban locality

The importance of commercial drug supplies in the area started to increase, parallel to aid, in the form of temporary markets across borders of the hostile territories; the markets were called *suq sumbuk* (see chapter 3). Interpretations of the benefits from these markets differ. Guma Kunda Komey interpreted them as the continuation of pre-war economic cooperation:

These market-centred transactions were reinforced by a series of locally brokered peace deals between some Baqqara and Nuba groups in their respective localities. This new type of strategic essential and situational cooperation emerged as an alternative to the normal pre-war symbiotic relations in order to counteract the severity of the formal war between the SPLM/A and the government forces. (Komey 2010, 109)

A.K., formerly in charge of the SPLA medical supplies (see chapter 3), described it, much more critically, as an opportunity for northern traders (*jalaba*), often connected to the regime in Khartoum, to profit from the difficult supply situation in the SPLM/A-held areas.⁹⁵

Both statements express criteria of boundaries among traders that affect the contestation over resources and illustrate an emerging smuggling market. In any case, the existence of these markets indicates the continuing importance of commercial interactions even between hostile areas, an importance that increased after the war, but very much changed the dominant actors involved. As has been shown in previous chapters, drug supplies were sporadic and very much connected to the movements of SPLA troops during the war, or to the specific interventions of INGOs. After the war, the central settlements, such as Heiban, also became central places of drug supply in the form of private drug stores and herbal traders that complemented, competed with or sometimes even superseded the official channels at the rural hospitals and health centres.

The following section will give an overview of the healers and drug stores in Heiban and analyse through case studies how they relate to other medical drug suppliers and healthcare provision in the area in general. The term 'market' refers not only to a particular physical space where providers of plural forms of healing products and practises interact but also to referrals of commercial healing services outside of the geographical space, for example referral to tooth ache healers and shamans in Longro (Lu u ´) village. The case studies will successively zoom in on different actors in the market, based on the chronological diary from the fieldwork.

⁹⁵ Interview with A.K., Heiban, 12/04/2011.

In Heiban, the market square occupies a central position and vital role, especially on Thursdays, which is the weekly market day as part of a periodic market system in the area. Heiban market is surrounded by functional buildings that confirm its role as a centre. There are two primary schools in the northern direction and the municipal offices of the Locality in the south; in the west there is the Heiban Health Centre and the town's police station. Furthermore, private houses extend in the east and surround the market more and more in all directions.

Apart from two *'ilajāt baladiyya* traders putting their goods on the ground during the market day, one private health centre and four permanent drug stores existed during the fieldwork period in Heiban, centred in the market as well, being located in all directions. The professional boundaries between drug store managers and *'ilajāt baladiyya* traders did not exist by geographical location only, but also in the knowledge and medical practices influencing the conditions of communication among and between these health practitioners. This leads to the exclusion of other actors external to their perceived healing professionalism. Examples experienced by the researcher in the market with traders in Heiban Locality, will be presented in the following cases.

Case 1

In an interview with one of the two established *'ilajāt baladiyya* practitioners and traders in Heiban market, he stated that he had done this work for almost 20 years during the war and post-war periods.⁹⁶ He had learnt this trade from his father, who used to come to Heiban's market day as well. His healing trade included dry parts of animal bodies, animal bones and herbs. He distributed these products in amounts of a handful in small plastic bags and put all of them on a big sugar cane plastic bag on the ground. He used a food spoon and a small cup to explain to his customers the amounts to be used for most of his products. He had customers varying in gender, age, work and ethnicity, some interested in buying these goods and some in consulting him as healer.

The interactions of this practitioner and the trader were dynamic and crossed many of the above-mentioned boundaries by communicating and providing services requested based on different interests in many languages. 'Language' denotes not only ethnic languages and Arabic, but also specialised, professional language. The latter was exemplified by the interaction between the trader, customers and the researcher, where the involved actors had different interests in the products and healing practices, constituting boundaries of the extent to which they invested themselves in the interaction to grasp resources as different as treatment, money, and information.

⁹⁶ Interview on 2/12/2010, Heiban.

In order to cross those boundaries, a long process of communication and trust-building started among the actors, i.e. the trader, his customers and the researcher. The researcher represented herself as a student doing research about methods of healing in the area, and the practitioner and trader started to speak very generally in local Arabic about his work and his healing trades. For example, he mentioned “this medicine is for this illness or this organ” using the word *dōwá*, derived from the Arabic *dawā*, ‘medicine’, without giving the name of the product directly in this sense. He named it by its uses not by its ingredients or the herb’s name if the treatment is based on one herb, for example. When the researcher asked the trader to name them by his ethnic language, Atoro. An Atoro soldier, who had overheard the dialogue in Arabic between the researcher and the trader, intervened and shifted to the Atoro language and told the trader aggressively that “you should not tell a foreigner our tribal things”, meaning the knowledge and language of their ethnic group. After the soldier had left, the researcher tried to cross the ethnic boundary evoked by the soldier by repeating that she was not only a student but one of Guma Kunda Komey’s students, a scholar well-known as one of ‘Heiban’s sons’. As a further step, the researcher recounted that she had lived in Guma’s family house for a long time and had done this interview with other traders in the market, which other people present during this dialogue confirmed.

The researcher then asked for permission to use a recorder and a camera to document the practitioner’s work. He was welcoming and changed his body posture, standing up, tidying his dress and speaking with declamation, in order to perform according to what he considered appropriate for recordings by camera (‘on TV’), which also caused a wider audience to join the place. Even after this clear sign of accepting the interview situation, the pattern of response did not change from his previous demeanour before the soldier had interrupted the interview, with the only difference that Atoro terms were used. Instead of going into the details of ingredients and preparation, he listed the name and the main use of his medicine, thereby confirming a boundary between his internal knowledge and the information given to his customers and now the researcher. The first part of the name was invariably *dōwá*, followed by *da* (‘for, of’) and the disease, symptom, cause or infected organ to be healed (see Table 11).

Table 11: Atoro Terms for Medicine used by Healer in Heiban Market

Name	Translation & use	Reference
<i>dōwá da dugoré</i>	medicine for the heart (chest pain)	Schadeberg 1981: 35
<i>dōwá da gaare</i>	medicine for the stomach (abdominal pain)	Schadeberg 1981: 23
<i>dōwá da jīñáṭ</i>	medicine for the teeth (dental caries)	Schadeberg 1981: 51

Source: Own fieldwork, October 2010.

The interview was interrupted whenever a customer appeared, which allowed the researcher to observe the ensuing interaction. In one instance, a woman who worked as mobile trader in ‘*ilajāt baladiyya*’ joined the interview. She had bought her products from markets in the Nuba Mountains and sold them in Khartoum, and she initially resisted sharing information with the researcher as she was suspicious about the real background of the ‘researcher’, whom she took for a competitive trader. Eventually, she became convinced that the researcher was just a student and the purpose of the camera and recorder was to document information for the research. When the researcher offered to do an interview without camera she said it was OK with a camera. Then she stood in front of the camera for the interview, and this encouraged the other trader to join in the conversation. In the ensuing communication between them, the camera actually supported the researcher’s purpose, as both of them not only responded physically to the camera, trying to be fully covered by the camera, but observably competed to represent their power of knowledge related to the products’ uses and values.

One of the shifts during this conversation was about price negotiation over a product made from a hyena body, and the promotion by the two in front of the camera to support their points in this negotiation. The female trader, for instance, while praising the healer as the best in the market, questioned whether the hyena had been killed properly or was a cadaver found somewhere, and implicitly claimed a higher status for herself by pointing out that she would sell the product at triple the price in Khartoum.

The healer shifted his linguistic practices flexibly, as he now included the Atoro name of the product for the sake of the researcher, while he would not use it in the negotiation with the female trader, who was not from the area. He thus described his medicine differently for public communication with patients, for (potentially) competing experts and for performance in front of a camera to compete with another trader.

These communication practices can be considered as a process of confirming or crossing boundaries between traders, customers, colleagues and researchers. Boundaries are used to limit or grant access to knowledge, for instance by using language in a way hiding or producing knowledge in specific interactions or by allowing or preventing the flow of knowledge by considering social boundaries between ‘us’ and ‘the others’.

This situational definition of communicative boundaries also applied to professional language. A further actor entering the dialogue in front of the camera was a male nurse, who had initially come to consult the healer and to ask about prices of herbs. He was a middle-aged man, who used a medium medical kit bag from the organisation FAR as shopping bag. He volunteered to assist the researcher in the interview by explaining the use of dry intestines from lambs to stimulate insulin production by the pancreas. In his initial perception, the researcher was not only from outside the area but from outside Sudan, and he considered the translation into biomedical terms a pre-requisite for the researcher to understand the local healing practices.

While boundaries are thus raised or confirmed during such interactions, in this case by the ethnicising soldier or by the resistance of the healer to give more specific information about his medicine, other boundaries are crossed or successfully challenged, for instance through a shared audience created here by the camera. In some cases, the effect is much more ambiguous, though, as through the intervention by the male nurse, who intended to act as a translator and intermediary, but actually erected a boundary that had not existed before by interacting with the researcher as a foreigner whose medical knowledge is informed by biomedicine.

Case 2

Interaction between different kinds of health knowledge has been found to be multi-faceted. One of the regular referrals witnessed in Heiban market was to a shaman (*kujur*) in a nearby village called Longro (Luḡurḡ). A meeting with him was arranged by an assistant of another nurse, M.K.,⁹⁷ who came to buy *‘ilajāt baladiyya* in Heiban market.⁹⁸

His place was on the top of a high hill. At the entry, there was a big tree and many heads of animal bones hang on the branches, mostly from cows, oxen, and sheep. The nurse explained that these are from thanksgiving slaughtering of an animal (*karāma*) by the families of healed patients of the *kujur*, praising his healing power. He may also receive money for his services, but it depended on his own consideration of appropriate compensation, and some of his patients worked during their stay in his house in the nearby field owned by the *kujur*.

After passing the big tree at the entry, there was a big yard. The researcher met two families there, one from Omdurman seeking assistance to conceive and the other from Dongola seeking treatment from the evil eye for their little boy. Both stayed on the ground. The door of the shaman's cottage was open, he was speaking with a woman with closed eyes; the nurse did not know the language of the shaman. The shaman and the woman did not hear or respond to the researcher's greetings; only after he finished they came out and greeted her. M.K. introduced the researcher to the shaman and explained the purpose of the interview.; The shaman asked his assistant⁹⁹ to show the place where the interview would take place and wait while he finished his work. There were three cottages in which the patients and the co-patients were living during the healing process. The rooms were surrounded by big fields that the patients farm and take care of the harvested products during their stay. Each cottage had two single wooden beds (*angareeb*) and water jars of clay (*zir*). After the tour, the nurse again introduced the researcher to the shaman, who asked the nurse to translate whenever the conversation needed it.

97. M.K. had graduated as part of the first batch of students from Ḥakīma Ya'qūb School in the 1990s, got rehabilitation through the medical kits workshops and worked then in Longro (Luḡurḡ) Health Centre.

98. The following observations are based on a visit on 5/12/2010.

99. The assistant worked as busboy (*kumsari*) in Heiban market, selling tickets and helping passengers with their bags. He was healed by the *kujur* several years ago and still returns frequently to him and assists.

The subsequent dialogue showed a remarkable communicative effort of the *kujur* to translate between different kinds of knowledge and their media. When the researcher asked the shaman about the sources of his knowledge he said *asrār rabbinā bi-yadaynā* ('Our God's secrets [between our hands]') because he was 'chosen'. He said that it was years ago when he was a child that he heard voices that explained to him the illnesses and gave him the treatment. He remembered there was a big ceremony in his village celebrating that he had become a *kujur*. No one around could remember the exact year, but both the nurse and the shaman's assistant said their grandmothers and grandfathers used to visit him for consultation.

The researcher then asked the shaman why there is a tree in the entry with the heads of animals, to which the shaman replied 'this is my certificate, doctor certificate, it means that I healed many patients'; afterwards he added the explanation as *karama* as the nurse had done before. The researcher asked how he would start work when a patient comes to visit, and he replied:

I have this stick, that was given to me in the ceremony, they call me, and I hear them by my stick, it is called *Alfarar*, it is my mobile, in this call they tell me what the illness (*marad*) is and how I treat it.

The stick intervenes differently from one case to another, sometimes 'they' make the call to him or he uses the stick to scan the body as one of methods to call them and it becomes, in the words of the *kujur*, "my x-ray to diagnose". Both a change of roles and a direct use of the stick's different functions happened when the *kujur* suggested healing the researcher, as he had received a call then. He started to listen to the stick, responding with non-lexical sounds such as aha, mm-hmm, etc. and mono-syllable questions such as when? At the end of the conversation, he said *tayyib* ('okay') and conveyed that they told him that the researcher had had an abortion a month after the marriage and that he should examine her. The examination involved the stick again as a scanning device and led to the referral to a medical doctor.

This shifted the focus of the interview to the issue of boundaries of medical expertise, and the researcher asked whether 'they' also in some cases order the *kujur* to send patients to another healer or to the hospital. He replied that there are certain illnesses he knows he has to refer to Gidel Hospital or to the health centre, sometimes after a call to the nurse in the health centre. For some illnesses, there is thus no need to call 'them', as in the case of malaria, chest infections that had stayed for a long time and HIV. Here the nurse, himself a former patient of the *kujur*, remembered that he even had brought antibiotics to the *kujur* when the latter had diagnosed himself with a chest infection.

Being a one-time visit, the shaman's specific terms can be due to his interpretation of the researcher and what he assumed is the researcher's knowledge and suitable language to provide a close picture about his practices. However, this ability of communicative negotiation between different kinds of knowledge is arguably part of his role and power as *kujur*. At the same time, the reference to an unclear power ('they') establishes and confirms a boundary to a kind of knowledge that only he and other chosen ones can access, thereby cementing his position as an exceptional service provider.

Case 3

The relationship of the health workers in the market with the healing traders did not have uniform features but based on individual choices affected by social and educational background. For example, none of the drug stores in Heiban market extended its services through referrals between them or with the herbal traders, but most of them communicated with herbal traders about new herbs or consulted them for their own health. While boundaries between different kinds of health knowledge were an integral part of competition and interaction between different health practitioners, these boundaries were not the only ones affecting the dynamics of contestation over resources in post-war Heiban. A look at several private drug stores in Heiban market facilitates a wider perspective on this contestation.

G.K., a former pharmaceutical administrator at several State Ministries of Health, received training during his work in drug store management.¹⁰⁰ In 2003, after the Ceasefire Agreement had been signed, G.K. retired and returned to Heiban. At the time of the fieldwork, he owned a drug store to the north of the market, which was the first drug store in the area opened after the agreement. He also served as drug supplier to other stores established after his one in Heiban, using his professional and political relationship with the State Ministry, a position that faded when other competitors found their way to Heiban during post-war time. Although there were more competitors in medical drugs he continued to work as a supplier to the cosmetic boutiques in the market. He also visited healing traders regularly and considered them 'colleagues', exchanged knowledge and advices with them, and discussed with them some of the treatments that he used. His shop's shaded front had become a meeting area for the local NCP members and supporters during the 2011 election.

In the opposite geographical and political direction was K.D.'s drug store.¹⁰¹ It was located to the south of the market, and K.D. became affiliated to the SPLM after his retirement from the military. He worked as a dentist assistant and used his pension and medical equipment taken out of service at the Military Hospital in Omdurman to establish his shop in Heiban. This shop was the least well-equipped drug store relative to the other shops, but its services were not limited to drug supply but also included some nursing in dentistry for an area generally lacking in dentistry services.

These two shops were considered the oldest drug stores established immediately after the Ceasefire Agreement, and both faced cash flow challenged because the average people could not afford payment for the drugs. However, because both G.K. and K.D. belonged to the area, as they said, they saw an element of community service in their work.

100. Interview with G.K., Omdurman, 1/12/2009, and visits to his drug store in Heiban in December 2011.

101. Interview with Kodi, Heiban, 26/11/2011.

In contrast to the stores of G.K. and K.D., 'Al-Mustafa', to the east of the market and started operations in 2008, was owned by T.H., a Medical Assistant, who was the director of the military hospital of the Joint Integrated Units (JIU) station near Heiban, belonging to the Sudan Armed Forces on the government side. The store was managed by S.N., working as a nurse in the same military hospital.¹⁰² This drug store, besides selling simple drugs, also provided additional services, such as checking blood pressure and patient consultations. The shop's supply came from several companies in Abu Gebeiha, Kadugli and Khartoum, but mostly from Al-Shifa Company in Sennar town. Hassan mentioned their supplies were more constant and from many suppliers, while the Joint Integrated Units suffered from lack of medical supplies due to dependence on the Joint Integrated Military in Kadugli as the only source, which was a challenge especially during the autumn season with flooded roads. While soldiers thus theoretically benefitted from free medical drug supply, the actual availability was limited at times.

Each of these actors mobilised a variety of resources, including social and economic capital, to dynamically contest for a stable or even a dominant position in the market. These resources were medical experience, social, political and financial resources. For instance, the first two owners used their former formal work relationships and retirement money to support their businesses; S.N. linked the success of his drug store to his and his boss' position in military medical units and their relationships with multiple suppliers.

A further example is that of K.A. who managed and owned 'Al-Ijlal Pharmacy', a drug store to the west of the market. The way in which he established and ran his shop will be looked at more closely. Specifically, the case study will look at the resources used to build up and extend the business, with the addition of an analysis of the dynamics by which its drug supply was connected to other health institutions.

Case 4

K.A. was born in Heiban area into a big family that held a prominent position in the SPLM/A.¹⁰³ He had been engaged in the Sudan Armed Forces as a soldier since 1988, and retired early in 2009; then, in 2010, he became a member of the SPLM. His service in military medical services started when he received First Aid training in 1996 for one month, after which he worked in Juba Military Hospital for two years. K.A. received technical nursing for a secondary certificate after his three-year study (1999–2002) in Juba's Teaching Hospital. His total period of study and work in military medical units in Juba lasted nine years. He then moved to Shendi Military Hospital for one year and worked in El Geneina for six years until his retirement in 2009.

102. Interview with S.N., Heiban, 26/11/2010.

103. The information in this section is based on an interview with K.A. in Heiban, 26/11/2010. Additional information was acquired through direct observation during the stay in Heiban.

In the formal definition of the WHO, this level of health education and eight years' work experience on this basis would be considered an Auxiliary Nurse, who has

some training in secondary school. A period of on-the-job training may be included, and sometimes formalised in apprenticeships. An auxiliary nurse has basic nursing skills and no training in nursing decision-making. However, in different countries the level of training may vary between few months to 2-3 years. (WHO 2012: vii)

However, in Sudan's formal system K.A. was regarded as fully qualified nurse. After he had acquired permission to open a drug store in Heiban as a certified nurse (*mumarrid bi-shihāda*) with Household Medicine License number 223, he established his drug store in Heiban market called 'Al-Ijlal Pharmacy'.

A difference existed not only between the assessment of K.A.'s position according to WHO standards and Sudan's formal health system, but also between the formal license he acquired to operate a private drug store for essential medicines and its signboard 'Al-Ijlal Pharmacy', which suggested the full range of pharmaceutical services. These differences in naming reflect the shortcomings of a formal/informal dichotomy of health institutions, as medical practices embodied in K.A. and the services provided in his drug store require an analysis beyond such a division (boundaries) and a consideration of different methods used to contest over resources.

One aspect is the kind of medical drugs offered in the store. Although the Household Medicine License and the General Guidance attached to it included the statement that "the one who has the license should be committed to the list attached with it", there was no list of medical drugs attached to K.A.'s papers. The Household Medicines License and General Guidance mainly allow the retail store to sell simple prescription medications, plus cleaning supplies and cosmetics, in addition to stipulations on store management. Apart from the control list missing from the formal papers, there was also a clear absence of a formal system of professional control of health practitioners.

This poses ethical questions for the health practitioners who consider what boundaries to cross in order to extend their opportunities beyond the limitations they face. In the case of K.A., the question is how he dealt with this difference between formal requirements and the professional expectations towards his 'pharmacy'.

In the interview, K.A. said "I sell medicine just in frame of my knowledge, based on my experiences from nursing; this does not include any type of medicine needing a refrigerator which is not allowed for drug stores". In fact, K.A.'s medical practice, based on his training in the military medical service, showed that he used his resources in knowledge and work experience to position himself in a market situation, where he interacted with customers and their knowledge and expectations. He was dealing with names of medicine based on brand or other names known to him or followed common knowledge in the area. For example, Wafrazole is a brand name of Metronidazole, which he sold under the locally known brand

name Flagyl; Amitrin, a brand name for Sulfamethoxazole plus Trimethoprim, was locally known as Septrin. K.A. supported this localisation of the pharmaceutical names by using the brand names common among his customers. It is not clear to the researcher, whether this was part of the marketing of his goods or if it represents the application of his knowledge from previous work. However, the resulting practice of naming cannot be understood by merely looking at the standardised names of the formalised biomedical system or by examining 'informal' local practices. It requires specific health-related interactions in which he takes part.

K.A. established a well-built and well-organised drug store. He used part of his retirement money of 38,000 SDG to build the store and to buy the medicines, the equipment, a TV and a power generator running on diesel. The services provided in what was called a pharmacy went beyond both the formal education level K.A. had acquired and the formal permission given for a drug store. Actually, he diagnosed patients or discussed with the customer the symptoms that he or she needed the medicine for; he offered free services such as giving injections. He stated that he "will not sell medicine or give injections needing [consultation with] a general doctor or specialists such as the gynaecologist". However, even this distinction does not result from a formal work permission or formal control system, but rather from K.A.'s own assessment of existing needs and his medical knowledge, work experiences and products for sale. In absence of adequate control by state pharmaceutical services and a gap of public service provision, his specific role in medical supply emerges through his positioning in the interaction between health institutions and market exchange.

At the same time, it would be misleading to define this kind of medical supply as 'private' dichotomous with 'public', as evidenced by a detailed look at how K.A. achieved his position in Heiban market.

K.A. obtained medicine mainly through salesmen of the Central Medical Supplies Public Corporation, Al Hadra Company, Ma'mal Wifra Farimaan Lil-Adwia Company, Al-Arabia Lil-Adwia wa Al-Mustahdarat Al-Kimia'iyya and Elie Company. Accordingly, some of the medicine in his drug store was produced in Sudan and some imported, but the focus is here on the supply chain inside Sudan to Heiban. K.A. said that he purchased the medicine from a salesman in Umm Bereimbeta north of Abu Gebeiha and paid through a bank account in Dilling to the companies' accounts in banks in Khartoum. After he sent his order to the companies, the salesman rented a car from Khartoum to Al-Rahad in North Kordofan, then to Umm Bereimbeta; the final leg of transport to Heiban was provided by K.A. with a rented car costing about 300-400 SDG. This arrangement allowed a regular supply to the drug store every three months, but he increased the volume of the consignment during the months before the rainy season; other supplies during that season came from Kadugli but was more expensive; additional transportation costs increased the price of the medicine for the customer, by about 0.1-0.4 SDG more.

When choosing a brand of medicine, K.A. is giving strong consideration to the customers' ability to pay. Hence, most of his medicines were low-price drugs costing between 3 and 5 SDG;

as he said, “our people here (*n sn hina*) cannot pay much”. He also sold some essential, but more expensive medicine; for example, he purchased Artemether injections to treat malaria (eight injections per treatment) for 10 SDG in Al-Rahad and for 11 SDG from Kadugli, and he sold them for 14 SDG in Heiban market.

There is not much of a formal price control mechanism to determine these prices. For K.A., the only factors were purchasing price, the transport cost and his own economic and social consideration of customers. Furthermore, when asked about additional expenses that could affect the price determination such as taxes, rent and operational costs, he said that the only money he paid to the State Ministry of Health was the fees for registration. Another kind of payment was made to the Federal Ministry of Health in Khartoum to purchase medicine from the Central Medical Supplies Public Corporation (CMSPC), which therefore defined a kind of baseline price for his goods. There were no taxes; he was the owner of the store – so there was no rent – and, regarding operational costs, he had a power generator running on diesel, which even supplied electricity to other shops near his store as a paid service, thus generating additional income and compensating for a lack of public electricity.

In both cases of medicine and electricity supply, there was no dichotomy, complementarity or even competition between private and public services. If anything, this case reflects rather the contest between the federal Central Medical Supplies Public Corporation (CMSPC) and South Kordofan state over the benefits of selling medicine to commercial providers, as the latter is circumvented by way of commercial intermediaries between Khartoum and Heiban. This is more problematic, as lack of financial resources was one of the main reasons why the decentralisation of the medical supply system through Revolving Drug Funds was not effectively implemented in South Kordofan.

K.A.’s self-control of the final price was a result of the lack of state functioning, which did not facilitate the accessibility of medicine to citizens in Heiban and provided no health insurance. The very weak infrastructure in public service remained based on wartime humanitarian aid. In this situation, the reliance on non-state services, that is ‘private’ provision, was the only option available for the general public to access medical care, and K.A. perceived his own commercial enterprise as a social service.

K.A. positioned and extended his business not only based on economic resources and gaps in weak public services, but also drew on political and social resources. The symbolic statement of a big SPLM flag, kept readily folded in his drug store, was used on many occasions; one of it was during the election in Heiban. In spite of his long service for the SAF, his belonging to a family prominently affiliated with the SPLM was another socio-political resource mentioned in the interview, and he stated that “I was a young boy when I got to the Sudan Armed Forces but now I am with my family’s side”.

Another telling example is the way in which K.A. extended his business to a private clinic. K.A. did not stop with the supply of medicine and electricity to the market. He bought the contents

of a shop, advertised it as a health centre which faced his drug store. It had been built on land owned by a man from Heiban and let for three months to a man from Abu Gebeiha who came to Heiban to work in the market. He had built the shop and brought medical equipment and medicine to operate it as a health centre.

K.A. and L.K.¹⁰⁴ both stated that the shop owner had opened his business health centre without a certificate as a Medical Assistant and had only one nurse, less than necessary to operate such an institution. There were many narratives about why he had come to Heiban market and how he left it, but all narratives gave the impression that he had not enough economic, political and social resources to stabilise his position. The neighbours of the shop who called the health centre were saying it is difficult to work in this market if one is not from the area or not belong to one of its five tribes. The former shop owner came to Heiban building on a private relationship with Heiban’s governor (*mu’tamad*), who was the former governor of Abu Gebeiha. He encountered much pressure, up to the point that he left suddenly without saying goodbye to any of his neighbours.

Emerging from all narratives was that K.A. bought, for one day, most of the shop’s lab equipment for only 6,000 SDG, containing laboratory solutions, an 80-1 Table top Low-speed Centrifuge, an electronically controlled photo colorimeter, a microscope, in addition to six big carton boxes of medicine, a stethoscope and a sphygmomanometer. In other words, K.A. took over the shop as soon as its owner left. Furthermore, in the following morning he invited the Medical Assistant K.K. and the two nurses in the laboratory of Heiban Health Centre to work with him in a new private clinic; and K.K. and K.A. immediately started the procedures to acquire a work permission. Soon thereafter, the clinic was run legally by K.K. as a Medical Assistant and K.A. as his business partner. This occurred a consequence of their combination of both ethnic and political links that characterised the conditions for access to resources in post-war ethno-politics in Heiban.

After less than a week the private clinic was operational. It consisted of one room divided by a curtain; one part was used as a lab and the other for the check-up bed. The large, high terrace in front of the shop served as a waiting room and for meeting the Medical Assistant. At the time of fieldwork, it was planned to divide the terrace into two parts as well. The establishment of this private clinic gave also rise to a new referral system in Heiban, running from the private clinic to the private drug store, and from the Heiban Health Centre to the private clinic and then to the private drug store, especially during Heiban’s market day. K.A.’s business was by then not only a contestant in the public health centre in health service provision and human resources. It had started a process towards an increasingly commercialised medical supply system.

104. Interview with L.K., Heiban, 25/11/2010.

The citizens in Heiban were thus subjected to general marginalisation in Sudan, by which essential resources for adequate health services remained lacking at federal and local levels alike. The developments shown in section two locked them between humanitarian aid transformed into Revolving Drug Funds and private stores working on their own account without a functional linkage with state institutions' income generation, such as taxes, etc. The NGOs' involvement in Revolving Drug Funds meant that the ultimate supplies emanated from external donors. The private drug stores did not contribute to the re-financing needed to sustain the state's Revolving Drug Funds, and the 'public' seemed to be absent from medical supply chain. This absence left, intended or unintended, the citizens in the lurch and alone in confronting the rules and power structures of market exchange. Even more, the few public institutions in the area found their human and other resources flowing into the market sector. Personnel in public health facilities were spending part of their time in private clinics and using equipment and other supplies to run private stores.

Chapter 5: Conclusion

5.1 Introduction

This thesis is concerned with the challenges facing the attempt to establish stable and sufficient health care provision in a post-war situation, free of both violent contestation over resources and the emergency character of service provision during wartime. This endeavour has required an investigation into the ways in which actors involved in health care provision interacted in war and post-war situations. It has also examined whether the functioning and interaction of health institutions changed towards non-violent health governance in the interest the general population's well-being. It has also raised the question as to how knowledge and medical practices were negotiated between different health practitioners, especially in a situation of plural and diverse health institutions to which individual health practitioners relate through dynamic processes of interaction.

Heiban Locality in South Kordofan / Nuba Mountains was selected as a case study of the interaction of plural and diverse health institutions in a post-war situation (2002–2011), following a protracted period of war (1985–2002). During both periods, a multitude of partly cooperating, partly antagonistic organisations were involved in health governance in the locality. They included the NCP-dominated Sudanese government, the SPLM as oppositional movement and later a partner in the Government of National Unity, as well as national and international civil society organisations, UN agencies, and the Sudan Armed Forces and the SPLA. They operated vis-à-vis a plurality of health institutions, diverse in terms of demographics, organisation, knowledge and practices and spatial reach, reflecting both different accessibility and cultural diversity.

The study documents health services in and around Heiban Locality between 1985 and 2011, including health administration, policies, information and reporting systems, and medical supply systems. It also analysed the interaction and interrelationships between health institutions in the region and beyond. It posed three key research questions: (1) what health institutions can be identified and how; (2) how health institutions interact in terms of health knowledge and medical practices; and (3) what dynamics of contestation over resources affect the interaction of these health institutions. These questions guided the use of qualitative methods during research, interviews and participant observation, and informed the structure of the thesis. Each question was answered by means of specific ethnographic case studies.

The findings presented in this conclusion concern issues of relevance beyond the study area, as they touch upon fundamental problems of Sudan's political, economic and social situation. They also pose challenges for the future direction of health care provision facing above all the

numerous towns and villages in Sudan that are or will be in a war and/or post-war situation. The researcher considers health care an essential social service and one of the societal needs that have to be fulfilled if the future integration of the nation and peaceful co-existence is to be realised. The thesis thus maintains that only if non-violent principles pervade health governance and the resource distribution on which it is based is equitable, can health care provision be considered a contribution to peacebuilding.

Defining Health Institutions

An institution exists when knowledge and practices become both individually embodied and socially active as the result of an interactive process by which actors learn and acquire skills to do things in certain ways. Based on this concept, the research initially approached the distinction between health institutions in space (rural or urban area) or time periods (wartime, post-war or peacetime). Similarly, a conventional distinction used in the study area, between the 'time of quarrel' (*zaman al-shakla*) and the time after the 2005 Naivasha peace agreement, suggested such a periodisation.

However, the research showed ongoing processes of institutionalisation rather than the existence of institutions fixed to a certain location or a time period. This called for closer attention to the circumstances under which institutions emerged and evolved or faded away. Far from an isolated or temporally limited process, institutionalisation was dynamic, whereby knowledge and practices were constantly exposed to more or less new situations and influences, or references, which required and/or induced the institutionalisation of other knowledge and practices. This process was studied in relation to specific health facilities to illustrate the dynamics between time-space boundaries and institutionalisation.

The research traced this process through the ways in which different actors defined places and times related to health knowledge and medical practices. A health care facility studied in Heiban, for instance, was variously referred to as a clinic, a rural hospital and a health centre. These variations in designation are not just due to different naming conventions. These names imply different conditions of functioning, as they denote the population and geographical area to be covered by services. Previous research (Hassan 2005) simply called it a clinic, which suggested a health facility with limited coverage inside Heiban town. In reports of the State Ministry of Health from the same period, it was described as health centre, however, which meant it was a/the central health facility inside Heiban town and had at least one Medical Assistant working there. However, members of the Heiban Association in Khartoum and official papers of the Locality and health cadres in the area called it a rural hospital, both to reflect its actual coverage of the town and surrounding villages, and to prepare a request for it to be practically and administratively upgraded to a fully-fledged hospital. For the local population, it was already simply dubbed *mustashfa* ('hospital'), as the only directly accessible larger health facility in the whole area.

In a similar way, the research considered other cases of identification and qualification of health care provision and the health institutions on which it was based. The question was to determine who defines and what refers to what how and why, while drawing spatial, temporal and practical boundaries that mean a certain scope and functioning of health care provision, as well as some obligations to provide the required resources.

The research did not just look at the boundaries defined and/or claimed by the involved actors, it also critically questioned conventional compartmentalisation and periodisation to underscore the continuous nature of the processes. A case in point was the introduction and use of medical kits in the area, which had been designed as tools for temporary emergencies, but became part and parcel of a 'continuing' emergency. In fact, the way in which the provision and use of medical kits organised medical supplies and health care reinforced the emergency situation, rather than transiting it into normalcy.

At the same time, the provision and use of medical kits were subject to changes that were analysed in this research. In terms of spatial boundaries, initially not defined by rural or urban areas, or even the demographics of needs, followed narrow paths of logistics, safety and human resources, which were dictated by military and political situations. Delivery and storage during the war, for instance, were based on hilltops or plain areas according to security criteria. Only gradually did reporting and information systems develop and, to some degree, regulated service delivery.

When military operations ceased after the 2002 Ceasefire Agreement, other organisations became involved, new initiatives taken, but the medical kits remained a predominant tool of service delivery. This development was facilitated by spatial continuity – the containers formerly used for storage of medical kits became the offices of the SPLM's Secretariat of Health. By temporal continuity, the timing of medical kit delivery organised how and when administrative staff moved around the area. By continuity of supply chains, the organisations providing medical kits remained the Secretariat of Health's focus for securing medical supply. The latter reached a point where a health unit, such as the one in Longro, could become a more effective health care facility than a health centre, such as the one in Heiban, because it had a more stable supply of medical kits, although it was subordinate according to formal definitions and covered a much smaller population area. In other words, the actual supply situation through a dominant pathway, which had been institutionalised as a supply system before 'peacetime', continued to define the functioning of health care facilities, no matter their formal designation.

This new institutionalisation of medical kits as a regular supply system also emerged through the juxtaposition of two definitions by health practitioners. While a Medical Doctor from Khartoum described them as First Aid kits for minor emergencies, a nurse from and active in the Nuba Mountains throughout the war saw them as the main source of medical supply in the area, whether during the war or in the post-war period. Their differing understanding not only reflected their autobiographical and professional

background, but also a difference in access to resources and expected obligations in health service provision.

Another example was the Ḥakīma (Ya'qūb) School that was defined, as a health education facility, differently by different directors. One had been part of the establishment of the Ḥakīma Ya'qūb School in 1989, including its naming after a nurse killed during the early days of the war. He considered the school the result of a continuous development and struggle since then. He had been part of the period in the 1990s when the school had to move from place to place for security reasons and formed by the interactions and resources it had in each place. The opening of Ḥakīma School in 2006 by Save the Children USA was seen by him as a continuation of this struggle.

Another had acted as a consultant since 2003 and later became the first director of the 'new' Ḥakīma School and considered it to be a new facility with no connection to the Ḥakīma Ya'qūb School. He was instrumental in setting up its the facilities in Kummo, educational buildings, a hospital and health units around the school, including agreements and support from international organisations. Accordingly, he saw it as a result of national and international expertise in health education, reflected in the name Ḥakīma as derived from *ḥikma*, wisdom.

The research showed that these contested definitions were part of wider processes, through which different kinds of knowledge and practices were institutionalised by means of health education. The negotiation of spatial and temporal boundaries is not merely about these two facilities, but also represents different approaches to the future direction of health education, stressing continuities rather than changes. In the beginning, the school was most of all concerned with its survival, both in terms of physical presence and functioning, and as an institution for the preservation and development of the cultural resources of the surrounding population; this remained the focus in the view of the first director. For the next director, 'peacetime' meant above all a struggle to legalise and integrate the school into the nursing education system of Sudan, and to raise the educational level of the students to international standards. Both directors were active and passionate about realising their ideas of the school's future as an integral part of the region's health education, and this formed, to a large extent, their sense of belonging to the school.

Whatever the perspective on future directions, though, both facilities were connected to the medical kit supply system. This indicated a crucial characteristic of health care provision in the study area, which surpassed limited definitions of locations and time periods. These definitions depend on who was defining what and how, and what the role of the definition was in the context of interaction between actors who expressed a sense of belonging through it. The definitions can thus be misleading when it comes to the identification and analysis of institutions, i.e. institutionalised knowledge and practices, their organisation and their functioning. In the studied case, the definitions specifically tended to conceal an essential process that may be called the institutionalisation of emergency.

The medical kit system started, from its inception in the mid-1990s, to define the contents and forms of instruction at the Ḥakīma Ya'qūb School, even involving students in the distribution of the kits. Ḥakīma School was actively supported through this system with teaching materials and equipment. This continuous need for support by an external source organised as a temporary intervention represents the area's constant exposure to uncertainty of supply and the instability resulting from it. This uncertainty concerned the most essential means of survival, such as health care, in a situation that constituted an emergency.

It is the contention of this research, therefore, that the emergence and institutionalisation of health service provision in the study area cannot be adequately understood through fixed definitions of health institutions, spatial units and time periods. It needs a recognition of the existing constant emergency. The functioning of health care facilities, medical kit supply and health education, for instance, were characterised by emergency situations to such a degree that finding temporary *ad hoc* solutions to deal with them had started to become institutionalised, to become accepted as normality. Based on this understanding, the research did not consider the studied time periods in separation, where war as a distinct period was followed by neatly defined post-war and peacetime periods. Rather, it concentrated on the changing aspects of an ongoing emergency.

On this basis, the research found health practitioners in the area confronting three main challenges. The first challenge was the contradiction between formal and informal definitions of health care, the former emphasising expected functions, whereas the latter acknowledged the actual functions. This was an issue concerning health care facilities. For instance, the mere existence of health facilities by name in statistical reports needed to be replaced by an assessment of real health services and needs, as well as the attendant individual health practitioners. However, the integration into the civil service applied limited criteria of certification, rather than actual educational and work experiences.

The second challenge was the contradiction between the existing plurality of health knowledge and medical practices, and the lack of recognition of this plurality in official health administration and policy-making. This widened the gap between strategic planning at federal and state levels, and once again reinforced the state of emergency.

The third challenge was a deeply rooted *ad hoc* mentality that induced the involved actors to look for temporary solutions to the continuous emergency in which they found themselves, rather than envisioning and implementing long-term policies. This again confirmed and supported institutionalisation of the state of emergency. Subsequently, the research looked at how health practitioners dealt with these challenges in their everyday work and interactions.

Interaction between Health Institutions

The interactions analysed in this research showed both the situation of a complex, continuous emergency and the concomitant institutionalisation of different health knowledge and medical practices by health practitioners operating with plural points of reference. The complex processes of institutionalisation were characterised by the need to deal with the expected functioning of a health institution and its actual functioning in different situations and how they related to each other, as the uncertainties of supply and accessibility created by a state of emergency often led to a contradiction between expectation and actual situation confronted.

Institutionalisation was observed through three kinds of processes: learning, acquiring tools and working. These three processes seemed to be working in a linear fashion, starting at a given point and finishing at another. However, they are continuous and inter-connected, affected by and affecting each other. In order to study these processes, health practitioners were observed, especially the interaction and interrelations between nurses and a plurality of health practitioners and health care providers, such as *kujur*, herbal healers, *bas r*, Medical Assistants, medical school personnel, medical staff of health centres, health administrators and various national and international organisations. The observations included the reference texts they used in their work and interviews about their qualifications and experiences, their views about other practitioners and the problems they faced.

A main feature of nurses' education and work in the study area was the absence of specialisation, which led to demand for training in a wide range of activities, such as administration, logistics, education, First Aid, diagnosis, patient care, and even transport. It also affected and was affected by overlapping positions of involved health practitioners, whose varied social and educational background and work experiences informed multiple references used both in teaching and in practicing medicine.

When international organisations started their involvement in health education, they provided important updates and additional reference texts. The prevailing method, apart from learning-by-doing practiced in some health facilities, were short workshops on skills and knowledge for immediate practice, such as vaccination, HIV awareness and use of medical kits. At the same time, they supported the *ad hoc* character of health education and subsequent work, due to the absence of administrative coordination as part of general health governance steering towards stable and functional health care provision. The presented information contributed to horizontal knowledge, rather than rehabilitation and specialisation that could develop vertical knowledge. Still, the medical kits were embraced by health administrators and practitioners as a ready solution, not embedded into a long-term policy towards self-sustained health care provision.

The production of *ad hoc* biomedical knowledge was based on the requirements of the medical kit infrastructure which stabilised predefined treatment policies and reinforced the emergency situation, in contrast to the cultural and environmental resources that nurses encountered

during general education and work, and that supported prevention policies, such as healing with herbal and animal products. This constituted one of the contradictions that affected the interaction between nurses and other health practitioners in the plurality of health institutions in which they operated.

The multiple reference works nurses and other health practitioners acquired during those continuous processes of learning, acquiring tools and working led to a complex interaction embedded in a situation of limited resources. Observation of health practitioners at the Heiban Health Centre, for instance, showed that in addition to biomedical drugs there was active referral to and positive personal experiences with bone setters, herbal healers and healing prayers, while other health institutions such as *kujur* were treated much more ambiguously, supported by some, strongly rejected by others. In other cases, referral was linked to economic interests, such as that between the health centre's Medical Assistant and the 'Al-Ijlal' pharmacy, where the former had shares in the business.

In the prevailing emergency situation, these plural references and referrals can be considered not just as an adjustment to a situation of limited resources, but also as a recognition and creative dealing with plurality as a value in itself, especially as some of these references were considered as cultural knowledge whose preservation is a crucial issue in the ongoing conflicts. This plurality may thus contribute to health care provision that benefits from important opportunities provided by a rich heritage in term of knowledge, resources and practices.

However, the referral and treatment practices found during the research were based on the individual characteristics of health practitioners, not health policies and protocols to organise and manage the quality of provided services and to ensure safe health practices. In addition, while the nurses had acquired a variety of skills and knowledge, their lack of specialisation responded to an emergency situation characterised by lack of health personnel and other resources. This created a professional background, which emerged over the years through a patchwork of activities and experiences, but without the consolidation of acquired competence through systematic additional studies. Rather than being able to address this gap in their professional development after the Ceasefire Agreement, many health practitioners were found trapped in situations of limited options and uncertain employment, some even embracing their continuing patchwork experiences as a positive paradigm.

Even those health cadres who got training opportunities outside the region did not find openings to further their development or benefit from better competence after their return, due to over-powering arrangements introduced by international organisations and with the politically charged negotiation over positions in the civil service.

In this situation, mid-level health practitioners, such as nurses, could become an important axis for the development of an effective and efficient system of health care provision, which is not merely based on top-down control or bottom-up *ad hoc* solutions. This could also be

considered an opportunity to extend democratic principles to health policy-making that negotiates the integration of plural knowledge and practices in a non-violent way.

However, one of the main dynamics in the study area was the close relationship between military and civilian contexts of health care provision. The distinction between both contexts was generally blurred by constant interaction and the overlapping positions of actors in health administration, medical supply, reporting and information. These actors functioned in a military position and at the same time had a civilian position, such as Secretary of Health, Director of the Ḥakīma Ya°qūb School, Director of Nuba Relief and Rehabilitation Organization (NRRDO), among others. The Director of the Ḥakīma Ya°qūb School (1989–2006), for example, was also in charge of medical supply in the Secretariat of Health, as well as Deputy Commander of Military Medicine.

These overlapping positions and strong interaction were, on the one hand, the result of a war situation, in which not only many elites had joined the armed opposition, but, on the other hand, also security issues and the military domination of logistics that generally required close coordination between civilian and military health service providers. However, the continuation of the military organisation of or at least the military involvement in health service provision after the Ceasefire Agreement exacerbated antagonistic approaches and the concentration on military rank rather than stable, effective and efficient public administration. The power-sharing logic of the CPA facilitated the transfer of high military positions into high administrative positions, rather than considering the individual qualifications and the existence of more qualified candidates. This was exemplified by contradictory dynamics during the civil service integration process, where the SPLA military actors insisted on consideration of their rank, while technocratic members of the selection committee tried to implement rigid formal criteria developed in the interest of stable conditions of education and work.

Neither the necessity of transition from military to civilian rule, nor the structural problems of the post-war situation were considered and thus furthered the marginalisation of qualified, but not certified, civilian professionals in the SPLM/A-dominated areas. As a result, the health professionals remaining in those areas had to turn to *ad hoc* solutions in order to continue their work, in contradiction to the required stability for rehabilitation and development after war. Rather than extending civilians' presence in health administration and the labour market, the power relations created during the war – and thereby their structural conditions – were allowed to continue.

Dynamics of Contestation over Resources

The third issue discussed in the research was the dynamics of contestation over resources affecting the interaction between health institutions. The dynamics identified by the research were analysed in terms of the boundaries the actors confirmed, crossed or established in order to obtain or protect their access to resources. In this sense, boundaries were not only

considered as tools to access resources, but also as resources in themselves. This included geographical boundaries, such as those between rural and urban areas, professional boundaries, for instance those between medically qualified and unqualified personnel, but also a number of dichotomies often invoked in order to distinguish health care providers and their implied status, e.g. formal versus informal (type of institution or institutional knowledge), public versus private (type of services or resources) and biomedical versus local healing practices (type of practices or type of goods). Other types of boundaries were ethnic identification, commercial interests, political interests or religious conviction.

An example of implicit confirmation of boundaries was the referral practices between nurses in the Heiban Health Centre and other health practitioners in the area. These referrals not only responded to the actual distribution of resources, which constrained the functions of 'public' 'biomedical' health facilities, but also to the ready service provision by 'private' 'local' healers, such as the bone setter. The practice was an implicit recognition of the benefit of plural health care providers, beyond resource scarcity, as a flexible response to health practitioners' and patients' preferences, and as a cooperative approach to health services.

Instead of making use of this recognition in the formulation of policies for integrative, albeit competitive health service provision, though, the post-war health policies remained defined solely by the formal definition of professional boundaries (qualified/unqualified) in the prevailing system of health governance.

The problematic aspect of this lack of recognition was even clearer in the case of health education. Confirming, crossing or making boundaries is a dynamic process that produces and reproduces institutions and their functioning in a specific situation. This involves knowledge and practices produced, protected and/or changed through this process, which makes boundaries part of the contestation over social, political and economic resources. As different health institutions are brought into interaction, moving and making boundaries become an essential resource for sustaining or weakening health institutions. In other words, the way contestation over resources in health service provision involves boundary-making and crossing of boundaries reflects the overall character and dynamics of health service provision itself.

Health education in the study area at the Ḥakīma Ya°qūb School was based on an interaction between knowledge and medical practices in emergencies, which prompted health practitioners to cross boundaries by adopting knowledge and practices that were not part of their previous professional background. Once again, this was not merely a matter of coping with limited resources, but also a conscious attempt at integration of the environmental and cultural resources as part of a struggle for both the physical and cultural survival of an endangered population.

This environmental and cultural richness did not find a corresponding recognition in post-war health education, where schools such as Ḥakīma School were rather steered towards adjustment to predefined national and international standards, and predefined boundaries between formal/informal and biomedical/local. While this certainly corresponded to the

increased presence of students and teachers from different areas inside and outside Sudan, this confirmation of boundaries differed markedly from the referral practices exemplified above in that it suppressed or at least ignored whatever lied beyond the boundary around formal biomedicine. Considering the importance of cultural preservation in the ongoing conflicts, this is not a trivial problem.

A further example was the shift of boundaries around the medical kits, which started as free humanitarian aid and slowly developed into a commercial good, thereby both confirming and changing their role in health service provision. In fact, the supply of medical kits combined both roles at the time of fieldwork, as it was still brought in by international organisations as non-commercial support but was commercialised in its distribution by various actors.

Since there was no viable alternative in the area, market exchange constituted the dominant dynamic of medical supply outside the health facilities run by international organisations. In its study of private commercial drug supply, the research showed that boundaries were variably used related to specific interactions, in communication with the researcher, in negotiation of market exchange, or in competition with commercial rivals.

On the one hand, this supported the plurality of health service provision by allowing a multitude of health practitioners to compete on the basis of customers' preferences and persuasion. On the other hand, this was neither embedded in any kind of quality control system, nor in actual competition on equal terms, as social, political and even military links and resources defined the dynamics of inclusion and exclusion in the market and beyond.

The most problematic aspect of this was the crossing of professional and public/private boundaries through overlapping positions. While going beyond 'formal' criteria of qualification was in some cases the only way to access any kind of health service provision, for instance when 'birth attendants' functioned as full midwives, this was in other cases used in order to establish a dominant position in market exchange. The example of K.A. in Heiban market showed how he was officially qualified as an Assistant Nurse and his shop licenced as a drug store, but he extended this business into a network combining a 'public' health centre, a 'private' health centre, a pharmacy, and an electricity provider.

K.A. got into the position to do that through several supportive dynamics of resource contestation. For one, he benefitted from the lack of a quality control system in providing health services beyond his certified qualifications but was guided solely by his own assessment of his knowledge and skills. Second, he made opportunistic use of the situation when a commercial rival suddenly left, apparently after experiencing exclusion on ethnic grounds by the town's population. Third, he used political links and private relationships to gain municipal – not state – approval of opening his own health centre in direct cooperation with the Heiban Health Centre's Medical Assistant, who worked in both places and started referring cases from the 'public' health facility to his business partner's private health centre and drug store.

This could be considered contestation over resources in the specific context of this particular market, but it also reflects wider dynamics that ultimately furthered the dominance of military actors and institutions in the study area. The widespread overlapping of positions in public administration and commercial business empowered individuals that had entrenched their position through their dominance over available resources. In consequence, public services, e.g. health services, did not develop following the necessities of equitable civilian service provision and public well-being, but rather stemmed from the contestation by military or ex-military actors over resources based on the position they had gained through the war. This did not just marginalise civilian actors or 'lower' military actors, but furthered militarily informed power relations and power struggles, rather than allowing and supporting the development of new, non-violent forms of interaction.

An example of military domination in the field of health service provision was evident in case studies of drug stores in Heiban market, all of which belonged to current or ex-military personnel who used their military and political links to support their market position. This exploitation of military and political relations signifies not merely a specific form of contestation over resources, but represents, in the absence of a functioning alternative for access to health services, the dominance of violence-based power relations in health care provision in the area. Violence means not just the use or threat of physical violence, for instance in military confrontations, but also structural conditions of exclusion that prevent, for instance, equitable access to health services. The presented case studies of dynamics of contestation over resources highlighted how non-violent alternatives, although existing, failed to emerge as a main form of health governance in the study area in a situation of increasingly commercialised access to health service provision in general and medical supplies in particular.

The extent of this problem can only be understood by looking at the wider context of these dynamics. The contested naming of the region, South Kordofan or Nuba Mountains, has been mentioned as an indicator of the deeply conflictual social, political and economic situation. Amidst recurring wars, the region has been subjected to long-term state-based structural violence in the form of well-documented marginalisation. This marginalisation has been traced through the under-provision and even statistical invisibility of pharmaceutical services, as well as through the consequences of federal decentralisation policies, which transferred responsibility for health service provision from the Federal Ministry of Health to the State Ministry of Health without giving the state level access to adequate resources, thereby exacerbating the region's marginalisation in health service provision.

The continuation of wartime power relations and militaristic political struggles was thus not only detrimental to the development of alternatives, but also continued historical precedents. The specific consequences of this structural violence have been documented in this research. It pointed to the consequences of centralised decision-making without regard for the effects of decisions through the example of the 2009 expulsion of the international organisations that were among the most active in the region. It also discussed the consequences of political conflicts over demographic information that was eying the election rather than public service

provision in relation to the lack of supplies and coordination during the 2011 polio vaccination campaign. Furthermore, it showed the consequences of the strongly delayed and contested civil service integration process, which should have been completed immediately after the CPA in 2005. However, it was officially started only in 2010 and never completed. Rather than leading to the improvement of service provision in the study area, it excluded some of the most qualified and active health cadres. In addition, the prevailing consideration of political and economic dominance suppressed prioritisation of actual service provision, as in the case of German Emergency Doctors whose registration in HAC was delayed up to the point that the organisation left, after 15 years of essential health care provision.

Summary

In conclusion, this research argues that the post-war stabilisation of health service provision in the study area failed because dominant actors did not allow non-violent principles of interaction and contestation over resources to become institutionalised and thus the basis of post-war reconstruction and peacebuilding. Those principles would have required the formulation of integrative health policies, which acknowledge the existing plurality of health knowledge and medical practices, while developing democratically safeguards of quality control, for instance through the constructive and decisive involvement of a variety of health practitioners. They would also imply that contestation over resources is protected from violence-based power relations, especially those resulting from wartime military dominance. These principles would mean, furthermore, that official recognition, for instance through registration and licencing, would follow actual service provision, not priorities reflecting political and economic dominance.

Overall, this would mean demilitarisation of the area, not just in terms of the absence of soldiers and weapons, but also in terms of a transition from authoritarian, top-down governance to democratic governance based on the recognition of multiple elements. This would not imply or demand the absence of conflict or contestation, but rather consensus-oriented principles of policy-making and organisation of public services in the interest of public well-being.

In the study area, interaction between health institutions and contestation over resources did not result in change from the prevailing emergency situation; on the contrary, the emergency seemed to have become institutionalised as a kind of expected normality. An alternative way out of this undesirable process is connected to the emergence of health governance that recognises, organises, enhances and adds to the existing health care providers, while controlling the quality of their services to prevent harm. This would only be possible if the dominance of military institutions and militarised political contestation were removed in favour of public administration oriented towards accessibility of essential services as a basic right and as a basis of the population's wellbeing.

Future studies should support the emergence of such health governance through systematic and wider research on the interaction of health practitioners in the context of plural health

institutions. Rather than accepting pre-defined boundaries and static concepts or dichotomies, research should analyse dynamic processes, such as institutionalisation, and be sensitive to the interactive relationships in these processes. Such research can inform future policy-making, as it would provide a deeper understanding of plural health knowledges and medical practices, and thus highlight and support the demand for versatile, democratic health governance towards non-violent health service provision.

Recommendations

Future studies

- *should include systematic and wider research on the interaction of health practitioners in the context of plural health institutions to support the emergence of non-violent and inclusive health governance; for instance, practitioner-patient-society relations, formal and informal relations between different health care providers, healing practices in areas with weak biomedical health care infrastructure.*
- *should avoid following pre-defined boundaries and static concepts or dichotomies, and rather look at dynamic processes, such as institutionalisation, and be sensitive to the interactive relationship in these processes, for instance the circulation of knowledge and practices (global/local, continuation as heritage), processes of formalisation and standardisation, as well as official recognition (or its absence), issues of economic and political power in health governance at different levels.*
- *should inform policy-making by providing a deeper understanding of plural health knowledges and medical practices, and thus highlight and support the demand for versatile, democratic health governance towards non-violent health service provision. For instance, health care systems should be enhanced by non-biomedical knowledge and practices that are recognised and used in society, and their inclusion should be based on open, consensual processes of evaluation and formalisation.*
- *should consider contingent effects in the health situation between local, national and global scales, including the wider impact of war not just on directly war-affected areas, but on the country as a whole and beyond.*

References

English References

- Abdel A'al, Tayseer El-Fatih. 2010. Governmental and NGO Structures in Dilling Locality, Southern Kordofan. In *After the Comprehensive Peace Agreement in Sudan*, edited by Elke Grawert. Woodbridge and Rochester: James Currey: 103-109.
- Al-Safi, Ahmed. 2006. *Traditional Sudanese medicine. A primer for health care providers, researchers, and students*. Khartoum: Dar 'Azza.
- Ali, Gamaleldin Khalafalla Mohamed. 2000. *Management of Revolving Drug Fund: Experience of Khartoum State, Sudan*. Master Thesis, School of Pharmacy, University of Bradford, Bradford.
- Amstel, Hans van, and Sjaak van der Geest. 2004. Doctors and Retribution: the Hospitalisation of Compensation Claims in the Highlands of Papua New Guinea. *Social Science & Medicine* 59 (10), 2087-2094.
- Andersen, Helle Max. 2004. "Villagers": Differential Treatment in a Ghanaian Hospital. *Social Science & Medicine* 59 (10), 2003-2012.
- Appadurai, Arjun. 1996. *Modernity at large. Cultural dimensions of globalization*. Minneapolis: University of Minnesota Press.
- Battahani, Atta el Hassan el. 1998. On the Transformation of Ethnic-National Policies in the Sudan: the Case of the Nuba People. *Sudan Notes and Records* 2, 99-116.
- Bayoumi, Ahmed. 2002. *Medical Care in the Sudan, 1820-1970. Volume 1: Health Care Systems*. Khartoum: Khartoum University Press.
- Bell, Heather. 1999. *Frontiers of Medicine in the Anglo-Egyptian Sudan, 1899-1940*. Oxford: Clarendon.
- Bergen, Leo van. 2007. The Value of War for Medicine: Questions and Considerations Concerning an Often Endorsed Proposition. *Medicine, Conflict and Survival* 23 (3), 189-197.
- Calhoun, Craig. 2010. The Idea of Emergency. Humanitarian Actors and Global (Dis)Order. In *Contemporary States of Emergency. The Politics of Military and Humanitarian Interventions*, edited by Didier Fassin and Mariella Pandolfi. New York: Zone Books, 29-58.

Crichton-Harris, Ann. 2009. *Poison in Small Measure. Dr. Christopherson and the Cure for Bilharzia*. Leiden, Boston: Brill.

Durkheim, Emile. 1893/1947. *The Division of Labor in Society*. New York: The Free Press.

El-Tayeb, Galal el Din. 2002. Human Development in Sudan from Agenda 21 Perspectives. In *Sustainable Development in Sudan: Ten years after Rio Summit, a Civil Society perspective. Proceedings of the National Civil Society Preparatory Conference, 2-4 October 2001*, edited by Hassan Abdel Ati. Khartoum: Environmentalist Society, EDGE for Consultancy and Research and Heinrich Böll Foundation, Regional Office Horn of Africa, 167-208.

Evans-Pritchard, Edward E. 1951/1972. *Social Anthropology*. London: Routledge.

Firth, Raymond. 1969. Social Organization and Social Change. In *Essays on Social Organization and Values*, edited by Raymond Firth. London: The Athlone Press, 30-58.

Gadh Eldam, Afaf. 2003. *Tendency of Patients towards Medical Treatment and Traditional Healing in Sudan*. Unpublished PhD dissertation. Oldenburg: Institut für Psychology, Carl von Ossietzky Universität Oldenburg.

GoSS (Government of South Sudan). 2005. *Local Government Framework and Ordinance*. Juba: Ministry of Local Government.

Gruenbaum, Ellen. 1981. Medical Anthropology Health Policy and the State. A Case Study of Sudan. *Review of Policy Research* 1 (1), 47-65.

Hassan, Jamila Elhag Abd Elmahmoud. 2005. *Chronic Conflict and Livelihood in Heiban, Nuba Mountains of the Sudan*. Unpublished Master thesis. Ås: Department of International Environment and Development Studies, Norwegian University of Life Sciences.

Hesse, Gerhard. 2002. *Die Jallaba und die Nuba Nordkordofans: Händler, soziale Distinktion und Sudanisierung*. Münster, Hamburg: Lit.

Hill, Richard. 1951. Rulers of Sudan, 1820-1885. *Sudan Notes and Records* 32, 85-95.

Ibrahim, Hamid El-Bashir. n.d. *In Search of the Lost Wisdom: the Dynamics of War and Peace in the Nuba Mountains Region of Sudan*. Unpublished manuscript.

Ille, Enrico. 2015. 'Nuba'. *A Historical Perspective on Changing and Contested Notions*. (Nuba Mountains Studies Working Paper 2). Halle: LOST Research Group, University of Halle.

Johannessen, Helle, and Imre Lazar. 2006. *Multiple Medical Realities. Patients and Healers in Biomedical, Alternative, and Traditional Medicine*. New York: Berghahn Books.

Johnson, Douglas H. 2003. *The root causes of Sudan's civil wars*. Oxford: James Currey.

Komey, Guma Kunda. 2005. *Regional Disparity in National Development of the Sudan and its Impact on Nation-building: with Reference to the Peripheral Region of the Nuba Mountains*. Unpublished PhD dissertation. Khartoum: University of Khartoum.

Komey, Guma Kunda. 2010. *Land, Governance, Conflict and the Nuba of Sudan*. Oxford: James Currey.

MacQueen, Graeme and Joanna Santa-Barbara. 2000. Conflict and Health: Peace Building through Health Initiatives. *British Medical Journal* 321, 293-296.

Malinowski, Bronislaw. 1939. The Group and the Individual in Functional Analysis. *The American Journal of Sociology* 44 (6), 938-964.

Manger, Leif. 2007. Ethnicity and Post-conflict Reconstruction in the Nuba Mountains of the Sudan: Processes of Group-making, Meaning Production, and Metaphorization. *Ethnoculture* 1, 72-84.

Mori, Larisa, David R. Meddings and Douglas W. Bettcher. 2004. Health, Human Security and the Peace-building Process. In *Conflict and Human Security. A Search for New Approaches of Peace-building*, edited by Hideaki Shinoda and How-Won Jeong. Hiroshima: Institute for Peace Science, Hiroshima University, 176-196.

Nadel, Siegfried Frederick. 1946. A Study of Shamanism in the Nuba Mountains. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 76 (1), 25-37.

Nadel, Siegfried Frederick. 1947. *The Nuba: an Anthropological Study of the Hill Tribes of Kordofan*. London: Oxford University Press.

Nadel, Siegfried Frederick. 1951. *The Foundations of Social Anthropology*. London: Cohen & West.

Nadel, Siegfried Frederick. 1955. Two Nuba Religions: an Essay in Comparison. *American Anthropologist* 57 (4), 661-679.

Nichter, Mark and Margaret M. Lock. 2002. *New Horizons in Medical Anthropology. Essays in Honour of Charles Leslie*. London: Routledge.

Omaar, Rakiy, and Alex de Waal. 1995. *Facing Genocide: the Nuba of Sudan*. London: African Rights.

Parsons, Talcott. 1951. *The Social System*. London: Routledge & Kegan Role.

- Pantuliano, Sara. 2005. A 'Principled' Approach to Complex Emergencies. Testing a New Aid Delivery Model in the Nuba Mountains. *Disasters* 29 (1), 52-66.
- Philpot, Holly. 2011. Operation Lifeline Sudan. Challenges during Conflict and Lessons Learned. Case-Specific Briefing Paper. Humanitarian Assistance in Complex Emergencies. Denver: University of Denver.
- Redfield, Peter. 2008. Vital Mobility and the Humanitarian Kit. In *Biosecurity Interventions. Global Health and Security in Question*, edited by Andrew Lakoff and Stephen J. Collier. New York, Chichester: Columbia University Press, 147-171.
- Rottenburg, Richard. 1988. *Die Lemwareng-Nuba. Ein Beispiel kultureller Akkreszenz im heutigen Nil-Sudan*. (Ethnizität und Gesellschaft. Occasional Papers; 15). Berlin: Das Arabische Buch.
- Saavedra, Martha. 1998. Ethnicity, Resources and the Central State: Politics in the Nuba Mountains, 1950 to the 1990s. In *Kordofan Invaded: Peripheral Incorporation and Social Transformation in Islamic Africa*, edited by Endre Stiansen and Michael Kevane. Leiden: Brill, 223-253.
- Said, Said Salah Eldin Al-. 2010. *The Health Information System in Sudan. The Disease and Outbreaks Surveillance System at the National Level and the State Capital. A Descriptive Study*. Master Thesis for Master of Philosophy in International Community Health. Oslo: University of Oslo, Faculty of Medicine, Institute of Health and Society, Department of General Practice and Community Medicine.
- Schadeberg, Thilo C. 1981. *A Survey of Kordofanian. Volume 1: the Heiban Group*. Hamburg: Helmut Buske.
- Suliman, Mohamed. 1997. Ethnicity from Perception to Cause of Violent Conflicts: the Case of the Fur and Nuba Conflicts in Western Sudan. Paper read at CONTICI International Workshop, Bern, July 8-11.
- Turner, Bryan. 2004. *The New Medical Sociology. Social Forms of Health and Illness*. New York & London: W. W. Norton.
- UNDP (United Nations Development Programme). 2012. *Sudan National Human Development Report 2012*. Khartoum: UNDP.
- WHO (World Health Organization). 2012. *Optimize MNH: Optimizing Health Worker Roles to Improve Access to Key Maternal and Newborn Health Interventions through Task Shifting*. Geneva: WHO.
- Wilson, Godfrey and Monica Wilson. 1968. *The Analysis of Social Change based on Observations*

- in Central Africa*. Cambridge: Cambridge University Press.
- World Bank. 2007. *Sudan Public Expenditure Review. Synthesis Report*. (Report No. 41840-SD). Washington: World Bank.
- World Bank. 2009. *World Bank Review of 2008 Budget Performance and 2009 Budget Preliminary Analysis*. (GoNU Budget Note Series). Washington: World Bank.
- World Bank. 2013. *Sudan Economic Brief: A Review of Sudan's 2013 Budget*. (Sudan Country Economic Brief Issue No. 2013-01). Washington: World Bank.

