FORWARD-LOOKING ANALYSIS OF FUNDING AND STRUCTURAL OPTIONS FOR THE HEALTH SECTOR GOING FORWARD, AND HOW THEY COULD BE OPERATIONALISED

For: Delegation of the European Union to South Sudan, and the Ministry of Health – Government of the Republic of South Sudan
December 2017

FINAL REPORT ANNEX G: Community-level Health Care

This study is funded by the European Union
Reference: FED/2017/384-934

1. Executive Summary 3
2. Context and Rationale 5
3. Methodology 6
4. Findings
5 Conclusions 19
6 Next Steps 24
Annex 1: Questionnaire for Boma chief 26
Annex 2: Current Observed Health Facility Distribution and Coverage in One State of South Sudan, 2017 31
Annex 3: Reorientation Training Materials 35
Annex 4: Health Worker In-service Training History 39
Annex 5: People Interviewed 40

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

1. Executive Summary

The health system in South Sudan is based on an obsolete model, with less than half the population served by facilities and an even lower proportion effectively able to access services

There is a high degree of variation between facilities, and what limited infrastructure there is, is not utilised effectively

The provision of health services to rural populations throughout South Sudan in late 2017 is delivered through an archetypal Primary Health Care (PHC) model. There is no typical infrastructure or staffing profile at the facility closest to the rural population, that of the PHC Unit. There may be three members of the health workforce all with rudimentary health training (or none) within a one- or two-roomed infrastructure of local construction. Alternatively, there may be thirteen people, some with diplomas, working from a solid five or six room building. In either case, the team will engage with a queue of individuals who have self-identified as being sick. Some disease-prevention work, most notably that of vaccination, is delivered through mobile teams based at State or even national level. Some facilities conduct other outreach, most often health education.

The Ministry of Health (MoH) estimates that 44% of the population live within the catchment area of a health facility, and so are able to make use of the services provided by PHC Units and the larger facilities of PHC Centres and County and State Hospitals. This leaves 56% of the national population without reasonable access to service provision. Given that urban and peri-urban populations will disproportionately use the service and that facilities are deliberately located in population concentrations; deeply rural populations can be expected to have markedly less accessibility to the health network.

Where a facility does exist, the distribution of services within its catchment area is constrained

Those living in outlying villages – which may lie some distance away - are markedly under-served. A clear imbalance exists: under normal circumstances those who live in the host village can access services all day, every working day of the year; those outside have no regular services on any day. Hence, there is inequitable access.

An evolution of the existing model from a Primary to Universal Health Care set-up, would support a near-term expansion in the physical coverage of services without additional resources, and in the medium to long term a dramatic expansion in population coverage.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Community-level approaches characterised by significant expansion of health activities taking place outside facilities[i], have delivered significant, sometimes transformational, expansions in health service coverage and the health status of targeted populations across a range of low-resource and fragile contexts.. South Sudan's current model is inadequate, and under a 'business-as-usual' approach no significant expansion in services is likely in the medium-term. The Boma Health Initiative (BHI) is both sound in its assessment of need and correct in its sentiment: vigorous and prolonged effort is needed to include and fix the now-marginalised rural population firmly within health service provision.

Practical steps could be implemented almost immediately to improve the effective coverage of services and radically enhance the health education, surveillance, and referral/access rates of populations in South Sudan. This is desirable in its own right, and would also provide a foundation from which a longer-term, resourced, expansion of community-level activities. So far, only proof-of-concept or relatively narrow (in geographical and programmatic scope) trials have taken place, over the medium to long term these could be scaled out and refined based on lessons learnt.

Existing health workers, those already within the health system, could be instructed – and helped – to reorient their focus from looking at the acutely sick within their limited health facility towards looking for the not-yet-sick within their entire catchment area. In a sense, a better net –rather than a better network – will allow increased coverage.

Travelling light – due to long distances (commonly up to two hours' walk) or difficult terrain – the health worker would require, in addition to a few basic items, only his most precious resources: his eyes, ears, brain and mouth. The objective will be to reach out to villagers in their own village and, using the existing and resilient, traditionally-grounded, local authority structures, seek out at-risk individuals and others and either generate behaviour change *in-situ* or refer certain individuals to the base PHC Unit for later assessment and treatment there. In an unfortunate distortion, the workaday term 'outreach' has come to be seen amongst the South Sudanese health workforce as vaccination work only.

This kind of approach would also contribute to the development and implementation of the Boma Health Initiative, providing facility-based health workers with a better understanding of the communities they serve and their health needs, while they gain experience of conducting outreach and community-level health activities. A greater engagement with communities could help identify the scale of needs and stimulate demand. Referrals to facilities can increase utilisation, greater emphasis on preventions, and early diagnosis and treatment can reduce the cost of services and improve health outcomes. This would support

[i] Most famous of which is probably the Health Extension Programme pioneered by the Ethiopian Federal Ministry of Health

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

better matching of resourcing and need, as part of progressive roll-out and deepening of the Boma Health Initiative.

Over the past few years, the MoH has identified the development and implementation of the Boma Health Initiative as one of its top priorities. It has sought support and technical assistance from a wide range of partners, but has in practice received more limited engagement than hoped. The Ministry has dedicated significant energies to its development and made great strides in conceptual development and identification of key activity areas for the BHI.

However, in its current form the proposed approach is problematic both in content and process:

- It anticipates a new parallel management structure fully separate from the existing health system. In complex systems, such as is the case for the health system in South Sudan, every new and untested component exponentially multiples the risk of system failure, and the reallocation of scarce resources will compete with, hence weaken, the acute resource needs of the existing health management system
- In its demand for a completely new – and as yet untrained - health workforce it aggravates rather than eases an existing distortion of human resources: that of the heavy preponderance of rudimentarily-trained staff as a ratio of total human resources for health (HRH). The dominance of committees and teams, as well as the separation of duties at local level, dilutes accountability for action rather than distils it. The mismatch between training and expected competence of the new staff looks insurmountable and underplays the steep challenges of effective behaviour change communication.

This report focuses on what is now being done, and what could be done within existing constraints, by actors at four levels: State, County, *Boma*, and village.

2. Context and Rationale

Initiating this process sooner rather than later raises the probability of the broadening of the portfolio of successful interventions, within a rational and integrated structure, over the next five years, and thus delivering for the majority of South Sudanese who do not currently have access to services.

The current health provision model is clearly inappropriate, while the newly-adopted Boma Health Initiative, officially endorsed over two years ago, is not yet available to potential service-users. Implementing changes now can improve the use of existing resources, assisting the MoH's efforts to re-orient services, and developing an effective approach to supporting the scaling up and deepening of community-level services over the course of HPF3. Initiating this process sooner

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

rather than later raises the probability of the broadening of the portfolio of successful interventions, within a rational and integrated structure, over the next five years, and thus delivering for the majority of South Sudanese who do not currently have access to services.

The health needs of very same rural populations are increasing. This is due to the impact of conflict since 2013 (and, less significantly, the economic crisis) and, somewhat paradoxically, the end of the long Sudanese civil wars and establishment of a more democratic and responsive government in South Sudan following the CPA and independence. Recent conflict has stimulated a range of associated drivers of morbidity and mortality, directly impacting health status, services, and acute needs. Meanwhile, the expressed health needs which were in abeyance during extended acute conflict – and which could not then be practically addressed – are now coming to the fore as the intensity of conflict subsides.

This report is being written now because of the need to investigate whether a re-arrangement of existing resources – in fact, a return in part to elements of the original role of the Community Health Worker – is ready and available. In addition, a plan that is constructed within the current resource limitations may usefully be developed.

3. Methodology

This report is derived from four weeks' field work in two sample states, Terekeka State, previously the northernmost county of Central Equatoria State, lying astride the Nile River downstream from Juba, and Tonj State, a composite of three of the former six counties of the former Warrap State, lying in north-west of the country.

The research questions were:

- How many Bomas (or basic administrative unit in each state) have their own health facility?
- Within each Boma, what outreach to villages is there?
- What could we do [about outreach] 'tomorrow'?
- What can we do about Bomas without their own health facility?

Meetings were held with the relevant managers of the national MoH, including an explanation of the evolution of the Boma Health Initiative, the review of relevant documents, and discussion of challenges in implementation. Following the field visits, they were subsequently debriefed and provided with an early draft of this report. The consultant met with the relevant Health Pooled Fund lead manager, and senior field staff from implementing partners working under the project, and engaged in assisting the MOH initiating the BHI in its current form.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

On arrival at each state, following protocol and presentation to the local authorities, every effort was made to physically observe the existing structures on the ground – both material and human – at all levels stretching from the individual to the State MoH.

Logistically, multiple challenges were posed by inaccessible secondary roads (due to water-logging five months into an unusually wet six-month rainy season in the south), shortage of transportation (due to the disrepair of the vehicles allocated to health), shortage of fuel and financially inaccessible fuel (due to unavailability of fuel at petrol stations and sky-rocketing black market prices).

The main BHI booklet, which extensively describes the make-up of the many future intended components, was referred to in order to ascertain any possible corresponding existing structures. Having accessed, and assessed, the components of the system (i.e. the structures) their inter-connections (i.e. links) were then investigated. How well each communicated with the other – in both directions – was looked at.

In the many settings, circumstances on the ground were considered, similarities (and contrasts) with circumstances in other international settings were established, experiences were reviewed, a range of possible interventions conceived and, where appropriate, some preliminary ideas were put forward and tested.

Gradually, within the relatively narrow scope of this exercise, and although the investigation in no way followed a linear sequence with events often happening contemporaneously, an alternative or complementary mechanism for providing health services – or at least, providing increased access to health services – was conceived and tentatively tested.

Throughout the exercise, any lack or shortfall of resources was actively embraced as signalling a closer approximation to the pervading reality: any putative Plan-of-Action should not depend on having such resources (e.g. vehicle, workshop training, medicines) rather it should be developed in the context of not having them. This report seeks to provide practical and realistic proposals that can be easily understood and implemented sooner rather than later. In so-called ‘disrupted arena’, the unexpected should be actively anticipated.

4. Findings

Four levels are described below together with their oversight by the relevant authority: the State, the County, the *Boma* and the village. To this list might be added the capital, Juba, and the *Payam*, which lies administratively between the county and the *Boma*. However, an analysis of the situation in and mechanisms of the national MoH is beyond the scope of this study.

Prepared as part of “Forward-looking structure and options” assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

For different reasons, Payams are also excluded. In the restructuring of administrative levels mandated by the Office of the President, the term Payam has lost much use in some states, particularly those of the Equatoria region which hold onto the Boma as the basic unit. Elsewhere, the term Boma seems to have disappeared, as former Boma become Payam. In short, the basic administrative unit which used to be called the Boma – after which the Boma Health Initiative, which pre-dates the States' re-organisation, was named – continues to be called Boma in some places and is called Payam in others.

In Terekeka State community members and leaders were visited in one rural village, staff and patients were engaged with in two distant PHC Units, further staff were met in one PHC Centre (a second proving inaccessible), in the State Hospital and during a concurrent week-long workshop. A half-dozen meetings or interviews took place in the State MoH. One County Commissioner (the lead civil authority in a County), three Paramount Chiefs (the lead civil authority in a payam, the sub-County administrative unit) and two sultaan, or chief (the lead civil authority in a Boma, the sub-Payam administrative unit) were interviewed, the latter using a structured questionnaire (see Annex 1). In addition, one mamor, or sub-chief, sheikh al-hila, or village headman was spoken with together with his serakaali, or village officials. A previous Minister of Health, NGO field staff and their managers, teachers, school directors, pharmacists, owners of private clinics and ordinary folk were also interviewed.

While the then-county clearly became a State (with adjustments to its catchment area) to be led by a Governor and Ministers and the then-Bomas, by and large, stayed the same, encompassing the same villages and continuing to be led by sultaan, or chief, the situation of both Counties and Payams has become fluid, as has the general population's understanding of them.

Six former Payams (Gemeiza, Nyori, Tali, Tindilo, Tijor and Terekeka [Town]) have simply and straightforwardly been transformed to Counties. They no longer appear to have any subordinate Payam, being now composed directly of Bomas. Meanwhile, the former Payams of Muni and Tombek have stayed as Payams now within the new Terekeka North County and the former Payams of Reggo and Rijong have also stayed as Payams now within the new Gwor County. All along, Bomas have remained constant.

In Tonj State, the investigation included an overnight stay at a PHC Unit (at Mabior Yar, 45 minutes by car from Tonj town). This allowed for the visit to one satellite village, Lolkou, in the afternoon and an early morning departure to a second, Ayuaath, the following day. The latter is the principal village of an administrative unit that hosts no PHC Unit, and was selected for that reason. Chiefs and sub-chiefs, known locally as baing dit and baing kor were interviewed as were various members of the health workforce. Two baing biit (traditional sorcerers) were interviewed and the State Governor was briefed and debriefed.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

The Minister for Community Development sought ideas for collaboration with health.

In Tonj State, three of the six counties of the former Warrap State – Tonj North, Tonj South and Tonj East – have become the new state, with a new capital, Tonj Town. The eighteen former Payams have become Counties and four new Counties have been added. Collectively, they have ninety-five former Boma, now Payams.

At the invitation of a Minister in Wau State, Kwajina PHC Centre, Wau State, was also visited with a view to exploring options for improving access locally. Two senior staff were interviewed. Some practical suggestions were discussed with the commissioner, five Boma chiefs and representative of local groups. The administrative structures in Wau State were not investigated.

For each level, the current approach is described, albeit taken from a sample size of two. This is followed with a description of practical interventions aimed at increasing coverage that could be initiated, in effect, tomorrow. Lastly, the rationale, intent, and weaknesses of the Boma Health Initiative in its current form are described.

4.1 Governance structures and oversight - States

(a) *Current approach:* In Terekeka, the former County offices have been decentralised into a Ministry – a decentralisation of accountability – while the decentralisation of authority and available resources have not kept pace. Capacity has remained the same since, by and large, the same individuals are in the same chairs yet have new titles. (This is not always the case, with a County Health Director (under the then-County) continuing to use the same title though his duties, logically, now encompass the State[ii].) To some extent the implementation thus far has been primarily an exercise in renaming. Beneficially existing lines of reporting and communication, and to some extent conceptions of responsibilities and cooperation, often remain the same.

In Tonj, the former County office of Tonj South has become the Tonj State Ministry and reporting lines have bifurcated: any original documents are returned to the former state capital in Warrap, now in a separate state, with copies sent to Tonj.

At Terekeka State MoH there was no territorial map; nor map of the distribution of health facilities; nor up-to-date population estimates; nor display of apex posts (the qualification of the most-trained member of the health team); nor organogram. It was not possible to immediately see, and hence identify, which Bomas were without a single health facility, i.e. the coverage of the health network. The same situation applied in Tonj: there were no visible signs of

[ii] This is further anecdotal evidence of the confused status of counties, at least within the health sector

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

management whatsoever (even, after seven months, an MoH sign) although some data were available digitally.

Three Counties in Terekeka had one corresponding PHC Centre, two Counties had none within them, while two others had two. An eighth County, Tijor, refused to co-operate with Terekeka and continued to correspond only with Jubek State MoH based in Juba. Only one of the known Counties, Tali, has a theoretically-perfect health facility distribution: there are nine Bomas, each with four-to-six subordinate villages, with one PHC Unit in each of the eight Bomas and one PHC Centre in the ninth. (Please see Annex 2 for the situation.)

In Tonj, all but one of the twenty-two Counties (former Payams) hosts at least one health facility, a fair distribution, if an inadequate one. However, 63 of the 95 basic administrative units (former Bomas) have no facility. Assuming (incorrectly but for the sake of argument) an even population distribution across Bomas, an estimated two thirds of the population – 650,000 people have no nearby health facility. Misdistribution in Terekeka is at the level of the PHC Unit. Misdistribution in Tonj is at the tertiary level where three hospitals – one public and two not-for-profit private – reside in the same small town.

There was no memory – certainly no record – of any visit to the new Terekeka State MoH by a senior or mid-level manager from national MoH. Some programme managers, e.g. from the Expanded Program of Immunization (EPI), had visited the State during campaigns.

(b) *A possible expansion.* Under an expanded model of provision to rural populations, the following aspects of the above structures might be proposed as an option for consideration and amended:

- The State MoH would be assisted to acquire a territorial map
- A map showing the (new) Counties with their corresponding named *Bomas* would be created.
- One lead PHC Centre per County would be identified, and persuasive support, involving the Governor of the State, as well as health leadership, to negotiate and oversee the transfer of supernumerary PHC Centre facilities/resources/ staff from relatively "over-privileged" Counties to under-privileged ones. Alternatively, one selected PHC Unit in each County without a PHC Centre could be upgraded.
- Similarly, and correspondingly, one lead PHC Unit per *Boma* would be identified, with persuasive support involving the County Commissioner, as well as health managers, to negotiate and oversee the transfer of supernumerary PHC Unit facilities/resources/staff from relatively "over-privileged" *Bomas* to under-privileged ones, would be provided. As an example of misdistribution, within Gwor County, there is but one PHC

Centre and three *Boma* have one PHC Unit each. However, less positively, two have three Units each, one Boma has an exceptional four Units, while a further three have none[iii].

- As a sharp incentive to change, budget allocations to State Ministries of Health could take into account their *Boma*-with-health-facility coverage. For example, Terekeka State, with eleven of its 44 *Bomas* without a corresponding health facility (25%) would have a quarter of its budget retained and only three-quarters released. Rapid change could be expected before the next year. (This is, arguably, entirely ethical: a quarter of Terekeka's population – assuming roughly equivalent population distributions across *Bomas* – are, after all, having health services withheld by the State MoH's resistance to manage).

- A diploma-level health worker manages – i.e. occupies the apex post of – a PHC Centre.

- To part-fill the gap, the best-performing Community Health Workers from the State are sponsored on a specially-designed abridged 18-month registered nurse course.

(c) *The (current MoH-proposed) Boma Health Initiative Approach*. In its Implementation Guidance, a series of eleven 'stakeholders' are listed, including, at one end, His Excellency the Governor and, at the other, the 'Private Sector' and 'Civil Society'[iv]. It is not articulated how the (extremely) all-powerful Governor will practically interact with others, given prevalent cultural norms.

Mention is later made of 'management coordination meetings', 'health and nutrition cluster meetings', 'provision of feedback' and 'coordination with partners' all mechanisms that diffuse rather than distil responsibility and accountability. This way, the clear and direct management responsibilities of the State MoH are lost. Some conceptual blurring is also revealed through the inclusion of 'community leaders [...] at County level', arguably a contradiction in terms.

4.2 Governance structures and oversight - Counties

(a) *Current approach:* The County, in the context of the post-December 2015 re-division of States and Counties (from 10 States and 79 Counties, to 32+1 States (and rising) and >230 Counties), does not exist as a health unit: in practice, all

[iii] The exact reasons for this misdistribution are unclear but they are presumed to be related to the preferential recruitment of individuals from certain communities for Community Health Worker training in Juba, who then returned to their home villages where each opened up their own PHC Units with no additional input or oversight from the then-County authorities, then or since.

[iv] Source: pp 8-9, BHI booklet

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

health facilities relate one-on-one directly with the State MoH, at least in Terekeka State. Supplies are arranged directly with the State warehouse, after approval. It may be that some PHC Centres, where they exist, can act as sub-depots for their satellite PHC Units, although severe limits in storage space make this unlikely. Facilities in Tonj answer, in some way, to their old former County headquarters but mostly answer directly one-to-one with the program offices of the NGO implementing partner, *Comitato Cooperazione Medica* (CCM).

Clinically, while there will be some referral from satellite PHC Units to any nearby PHC Centre, if travel does not involve a detour, consumers seeking health care are likely to self-refer as they conduct their day-to-day business, say, during a trip to Juba or, for Tonj, Wau.

Any Clinical Officer, the apex post of a PHC Centre, will not envisage himself as being the senior health person for a geographical catchment area known as the County, merely the lead clinician of a given facility[v]. This applies in both States.

(b) *A possible expansion.* Increased coverage of the health network, which will improve access for rural populations, could be facilitated by adopting the following suggestions[vi]:

- An attainable target would be for each *Boma* to have its own physical PHC Unit providing, at least in theory, full and equitable coverage albeit with reservations about distances, catchment area sizes and populations.
- This expansion could be achieved with reorientation of local resources to set up or transfer rudimentary facilities, and establishing PHCUs within schools (of which there are around 3500 - more than one for each Boma – against less than half as many health facilities). Again, here it is *access to services* that is under investigation. The availability of health workers after access, the acceptability of those workers' services to the users, and the quality of the services provided are related concerns, requiring their own investigations.
- The map of facilities (referred to above) could be studied. The mapping of facilities need not be accurate topographically, but every basic administrative unit must be shown and named and the presence or absence of facility indicated. A preliminary percentage estimate of state coverage will be:

[v] Any broader vision is unlikely. A recent Job Vacancy announcement for a Clinical Officer in Mundari Bura PHC Centre (seen on 26 Sept 17) listed only technical-clinical tasks related to the infrastructure.

[vi] Aspects of Universal Health Coverage (UHC) - aside from mere geographical accessibility - are: financial and physical accessibility; availability of an appropriate health workforce once the facility is accessed; acceptability of the services offered and quality of that care. None of these aspects are under consideration in this report. The priority focus – in the sense of the thing to do prior to other things – is get hold of services, irrespective of their nature.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

$$\textit{State coverage (\%)} = \frac{\textit{Number of 'boma' with at least one facility}}{\textit{Total number of boma}} \times 100$$

- Identify the lead PHC Centre within any given County (see above)
- Call all relevant Clinical Officers to a meeting at State MoH and announce the proposal to amend their Job Title to County Health Officer. A 'qualification' is distinct from 'job title' - a medical doctor does not stop being a doctor if he is also the State's Director-General (DG). These individuals are currently (relatively) extremely generously paid by Implementing Partners (NGOs) and experienced in having to periodically reapply for their positions, so can be expected to reapply if necessary[vii].) This addresses an organisational lapse within the health sector: while the Ministry of Local Government has posts of Governor and Commissioner, for State and County respectively, the Ministry of Health no longer does: there is presently no individual answerable for the health of a County in the way that the Minister is answerable for the health throughout the State.
- Seek a volunteer County Health Officer to initiate the roll-out within the State of health provision re-orientation. All available senior managers, to include an individual with facilitation skills, would relocate to the identified county for a chosen one-week period. During this week all PHC Unit managers could be given re-orientation.
- Further visits could occur in other counties, as time allows.
- Promote the use of 'Health Centre' (instead of 'PHCC') and 'Health Unit' (instead of 'PHCU') to start the (conceptual) move away from a PHC model towards a Universal Health Coverage one: the facility is the base for more than just Primary Health Care and this ought to be correspondingly reflected in the nomenclature. For the population this distinction matters not one whit: every facility is, in practice, described a *isbitaalia* (hospital) and every worker a *diktor* (doctor).
- (c) *The Boma Health Initiative Approach*. The initiative attaches some importance to the County level (pp 9-10 of the BHI document). It anticipates that an (in the post-December 2015 re-divided States and Counties) as-yet unformed County Health Department, to be staffed by personnel with a public health background – who are not currently available in sufficient numbers - will divide its attention between clinical and community services. The initiative expects that the said department will 'promote community participation' although the mechanism for this is left unexplained.

[vii] ADRA, to take a not-unrepresentative example, pays employed Clinical Officers USD 550 each month, with no delay – compare this with eg a $40 per month incentive for teachers from the IMPACT project.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

4.3 The Boma and its oversight by the County

a) *Current approach:* As with the County, the *Boma* does not yet appear to exist as a geographical health unit. Facilities are conceived of as belonging to a given *Payam* – the new arrangement not yet having much currency – but not especially belonging to a Boma. This is borne out both by the facility name, which often takes the name of host village, or the old village of the population before displacement, and by the lack of facility-*Boma* correlation in the network distribution.

As many 'new' Counties do not yet exist, facilities can be conceived of as stars in the firmament, twinkles of health provision dotted across a largely empty void. There is no sense of a PHC Unit assuming ownership of the health situation across a given *Boma*, and thus no patchwork of service-provision units covering a space: the term 'coverage' can only be applied loosely.

(b) *A possible expansion.* Interventions to improve access, again for consideration by the Ministry of Heath, might include:

- During the week-long stay in the chosen County (as mentioned above), managers could more clearly frame the BHC role, and which cadres would normally re-frame Community Health Workers as Boma Health Workers. The qualification is distinct from the job title; Boma Health Workers could be drawn from a range of cadres. Increasing (or rather, reviving) the training of lower-level cadres will be critical for the implementation of the BHI, and the improvement/expansion of facility-based services more generally.
- Health workers at PHCUs, PHCCs, and Boma Health Teams should hold monthly planning and review meetings closely together to coordinate the provision of services (meetings for this should take place periodically within each State or County). Management arrangements, reporting lines, and responsibilities between different actors should be explicit, including a well delineated role for the Boma Health Workers. Staff based in PHCUs and PHCCs should be instructed to assume responsibility for the health of their entire catchment areas.
- For staff based in PHCUs or PHCC, authorisation could be given to close the facility one day a week (perhaps every Thursday) in order that overnight trips to outlying villages could be conducted. Volunteer workers – there are at least usually a male and a female volunteer attached to each PHC Unit – may remain at the building but they should be considered as unsafe practitioners. Their role could be to explain the health worker's absence to health-seekers until such time that the new opening days are understood.
- The following three days could be used to deliver practical re-orientation training as detailed in the next section

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

- In a county where only one PHC Unit exists a particular challenge arises: this *boma*-based facility is actually serving an entire county. The lead health worker, who may be a Community Health Worker, is in effect the County Health Officer. Here the same outreach option might be introduced but with a longer absence each time from the health facility, taking into account longer travelling times. One different *Boma* could be visited each month: in a six-month dry season, in a county with one main Boma plus three satellite Bomas, the health worker could visit each twice - this is negligible yet the service gap between 0 and 1 is much greater than that between 1 and 2: two visits of a couple of days each per year is vastly different from zero visits, all year.

(c) *The Boma Health Initiative Approach.* After listing nine 'stakeholders', the document describes the make-up and roles of five components: the Boma administration, the Boma Health Committee, the Boma Health Team, Home Health Promoters, and households. Boma Health Committees are made up of a mixture of technical staff, health workers, community members, and senior local figures..

The *Boma* administration **is** an extant and functioning component of the Local Government. In Terekeka State, the *Boma* authority is a unitary figure in the person of the *sultaan*, or chief, who is also the Boma Administrator. Elsewhere, they are reportedly often separate, with the *sultaan* limited to matters of tradition. Every *Boma*, which is a clearly defined, well-documented (in the sense of possessing accurate and up-to-date data on household numbers, heads of population, etc) must have a *sultaan*, who answers directly (often via mobile phone) to the County Commissioner. In Tonj, amongst Bongo communities, the nomenclature is similar; amongst Dinka communities the chief and paramount chiefs are referred to as *baing dit* (big authority).

The *Boma* Health Committee is conceived of in the document as 'a multi-stakeholder platform' expected to 'achieve multi-sectoral collaboration'. It correctly identifies the importance of accessible, consensual, responsible, representative oversight. The TORs for Boma Health Committees try to address these issue by having a large number of stakeholders as members. Membership on the 9 to 11-member committee is expected to, at the same time, 'span beyond the [...} *Boma'*.

Experience suggests that committees of this size are cumbersome and unwieldy; members representing marginalised or vulnerable groups may not feel comfortable to fully engage. The plethora of proposed committees throughout the document suggests a willingness to dispense with a practical and now-functioning component – in this case the authority and leadership of the *sultaan* – in favour of an as-yet non-functioning one.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

It is feared that these committees might fail to function, as is the fate of so many. Evidence of this was already found at one site where stagnant, contaminated water surrounded a borehole in front of a certain PHC Unit: the three members of the "local health committee" would only agree to meet if refreshment was provided which, given the resource-free circumstances, it could not be.

The intrinsic moral authority and standing of the *sultaan* or Boma Administrator is, in fact, put in jeopardy by his co-participation in a committee: all others in the *Boma*, including the Facility in-charge, must remain clearly subordinate to the chief for the system to perpetuate[viii].

The *Boma* Health Team is expected to contain three individuals. Separation of duties is not spelt out – fortuitously- since it is planned that each will be trained 'comprehensively'. Like the proverbial 'adults around the swimming pool' who each assume another is watching out for a child drowning, the emphasis on teamwork risks further dilution of accountability and responsibility.

Their expected tasks – divided into 'should do' and 'can do' - are covered in some detail in the BHI policy. The 'should do' component, labelled Aspect 1, covers seven pages (pp 34-40) and diverges markedly from the original stated intent of health promotion, disease surveillance, and the provision of 'selected treatment packages'. The expected competence of the proposed new staff looks incomprehensibly difficult. This is especially so for not-formally educated individuals from the locality who will be given piecemeal training by as-yet unidentified trainers. The content might be expected to challenge degree holders requiring, as it does, the mastering of a combination of a three-year Public Health Officer syllabus together with a five-year Health Visitor's one. Although not explicitly set out, a training period of between 3 and 12 months is likely.

The 'can do' component of the BHI, labelled Aspect 2, is more realistic, hence theoretically attainable, demonstrates a familiar disease-based vertical program focus. Effecting behaviour change is both very important and very difficult. Experience elsewhere suggests that this can be one of the greatest impacts of community-level/UHC health programming. It requires more than the issuance of necessarily-bland instructions by neighbours.

After health education/preventative interventions, the BHI correctly identifies referrals as a major component. Relatively low-level workers can have a large impact by directing people to visit health facilities before they deteriorate. Comparable programmes in neighbouring countries have worked best when they are tightly integrated with the existing administrative structures and facility network. In its current form the policy does not adequately do so, and appears to

[viii] Nationally, as far as can be ascertained, there is only one known example of a female chief, in fact a paramount chief, a certain lady in then-Torit State. Known as *sultana*, she has so far been unable to promote other women, perhaps because of the hereditary nature of chiefdom-ship in that area.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

propose the establishment of new parallel and vertical administrative frameworks. Inadequate coordination between different facilities and administrative units leads to ultimate dependence (and a degree of blind faith) on the operational strength of others points to an intrinsic weakness. Further, its own presence, by drawing off resources, weakens the very referral system it depends on.

Home Health Promoters are described as volunteers. They are present in some States but not all, in those States one or two are often already to be found in each village: they are the same people who are called to assist in the activities of various vertical programmes. They can be co-opted to assist the newly reoriented 'beyond the facility' approach outlined herein.

4.4 The Village and its oversight by the Boma

(a) *Current approach:* Some villages are well-served – when they are also the site of a PHC Unit, or PHC Centre. In this case, up to half of users in the patients register may come from that village. Other villages in the *boma* appear in the register much less frequently although they house approximately similar, though smaller, numbers.

There is no history in Terekeka of Community Health Workers leaving their facility to do outreach work in outlying villages, unless it is within an externally-instigated campaign. Some may have their own bicycle; very few will own their own motorbike. In any case, during six months of the year (roughly May to October) rains make paths unusable by bicycle and may entirely cut off whole villages. This is not the case in the drier, desert-like expanses of parts of the old Northern and Western Bahr-el-Ghazal States and in the rockier old Eastern Equatoria State. Elsewhere the wide alluvial plain of the Nile turns much of South Sudan into a swamp during the rainy season.

Throughout Tonj's PHC network, a member of the workforce will relocate to a given village every Thursday in order to deliver a (disease-based) health education message based on a review of the patient register for the previous week. Records show a single word description of the event (e.g. 'pneumonia' or 'malnutrition'). It was reported that, where two qualified staff members exist, one will go to the village although this could not be confirmed by the one events register reviewed (the outreach worker was consistently an untrained volunteer).

(b) *A possible expansion.* The Ministry may wish to consider the following interventions:

- On arrival at a PHC Unit, the manager could review the Out-Patients Department (OPD) register for a given substantial period (perhaps one to three months). Using a tally sheet, the home village of each patient can be tallied and summed. (Where villages are too small, their nearest village

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

cluster can substitute.) Totals can be transcribed onto a replica local map to show distribution of attendees.

- A very basic guess of the degree of spread of services can be gained from the records: a PHC Unit where two-thirds of patients come from the host village has, say, a two-thirds concentration (or one that is veering towards one, or total concentration): another PHC Unit where a quarter of patients come from the host village has, say, a quarter concentration (or one that is veering towards zero, or total de-concentration): A preliminary estimate of the degree of concentration of services in the *boma* will be:

$$\textit{Degree of concentration} = \frac{\textit{Number of OPD patients from the host village}}{\textit{Total number of OPD patients}}$$

- The map of attendees (referred to above) could be studied. Privileged and under-privileged locations could be identified. Apparently surprising anomalies, such as a nearby village with an unusually high, or low, attendance, could be earmarked for further investigation.
- Using one *Boma* as an example learning environment, Boma Health Workers from the chosen County could be taught what to do to expand coverage in one village in one day. The approach would be to cast the health net – or, rather, use village volunteers as the net – to seek out and 'scoop up' at-risk individuals and others.
- On the first day, activities and checklists could be taught. On the second, the same activities and checklists could be practiced using the chosen boma's actual villages. On the third day, the skills might be practiced once again. (The objective would be that each individual is job-ready – i.e. fully competent – to repeat by themselves what they have learnt).

> The image of the net was used in discussions with local leaders thus: the fisherman in his boat throws out the net to draw the fish in; he doesn't dive into the water to grab the fish one-by-one. Hence the village visits are to be used to reach out to certain people – the net being the village chief's volunteers sent out on his instructions – to haul in people who may, or may not be referred on to the PHC Unit. The boat stays the same, it is the better use of the boat that changes.

- For Monitoring & Evaluation purposes, maps and measurements both before and after the training could be produced. For example, a map of pre-training knowledge of villages, presence of volunteers, numbers of individuals in certain categories etc. could be produced and compared against that after training.
- In this event, three overlapping training sessions would occur: the Boma Health Workers are being re-oriented; the County Health Officers are being shown what to teach upon return to their Counties; and the State's senior

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

facilitator is being shown how to support the County Health Officers. (He will also learn how to help colleagues in other States.)

(c) *The Boma Health Initiative Approach*. The document comprehensively lists *what* the putative Boma Heath Team will do, but currently lacks a practical guide as to *how* they will do it. This chimes with known current training methodologies: in one witnessed workshop, all sessions addressed knowledge acquisition, none were aimed at behaviour change. Behaviour change here means how the participants' own behaviour will be different in their work.

In its current form, the initiative implies that the full services of a PHC Unit will, in effect, become mobile. How exactly such rudimentarily-trained staff will acquire the knowledge and skills needed to engineer entrenched behaviour change amongst their kin - a very tough ask – needs to be elucidated.

5 Conclusions

The existing health system is incomplete

In the eight levels of civil structure between HE the President and the family member, the existing health *structure* can be said to be represented – at a push - in five of them: national and State-level structures exist, together with facilities which may be located at any one of three levels: County, *Boma* and village. (The latter occurs when a facility is sited in a particular village.)

In the context of the post-December 2015 re-division of subnational structure, in health there is really only one functioning link between components, that between the State MoH and the facility. National-to-State links are currently minimal as are Unit-to-Centre correspondence. There are no links below the facility level: from facility to outlying village, from that village to the household, and within the household.

The significance of this is that health has the opportunity to go as far as it can through its existing structures – as far as the facility – and then switch across to the local government structures, 'piggy-backing' on their sub-County contacts. There is no necessity for health to devote resources to create its own parallel structure.

The Local Government system is strong and active

By contrast, within local government, in all the same eight levels, both the structures and their corresponding links are relatively vibrant: President, Governor, [County] Commissioner, Paramount Chief, *Boma* Chief, Sub-Chief, householder and family member are all present – without exception – and all strongly sequentially linked. This is to say that, upon receiving specific

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

instructions from the Governor, one can be sure, with a fair degree of confidence, that that message content will be passed down through the commissioner, via intermediate paramount chiefs and chiefs, and onward to village sub-chiefs and householders. (The reverse direction is not the same, however.)

The significance of this is that health has the opportunity to go as far as it can through its existing structures – as far as the facility – and then switch across to the local government structures, 'piggy-backing' on their sub-County contacts. (There is no necessity for health to devote resources to create its own parallel structure.) Once instructed by the Governor (after representation by the State Minister of Health), the Commissioner may instruct *Boma* chiefs to, say, facilitate the outreach visits of the Community Health Worker, and the chiefs can be relied upon to comply. They, in turn, can contact the relevant village sub-chief to collaborate with the health worker.

Within the village, a householder will obey the instructions of their village chief, say, to bring a named child to the village meeting place or escort a certain household member to the health facility. They would not do so with the same compliance if the request was made directly by the health worker, whom the householder may not know and is under no obligation to obey. Boma chiefs are already involved (and may be waiting for an opportunity to play a more active role).

The Boma Health Initiative will start from scratch

The local government system compares favourably in respect to that of the health sector. Progress on implementation has been slow, whilst conceptual weaknesses persist. As described in the introduction, the Ministry of Health has received minimal support from the major traditional donors in developing the BHI. The Ministry has nonetheless devoted significant energies and resources to it, but has struggled to integrate it more tightly with existing health services, facilities, and projects.

Every one of the structures upon which the BHI relies are relatively weak, the links between them are often absent, and, none of them has been tested.

The establishment of the Boma Health Initiative system, assuming it successfully overcame resource and administrative hurdles, might represent a backward step. Its (future) existence might undermine the health system structures and links (which are already fragile) and act in competition to the local government ones.

Boma Health is theoretically possible 'overnight'

There is already a pathway to deliver increased access to rural populations. It uses existing resources and can be delivered, metaphorically, tomorrow. There will also

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

be marginal extra cost[ix], certainly vanishingly small in comparison to the proposed budget of the Boma Health Initiative.

Bridging the gap between the current set-up, and the comprehensive BHI proposal requires a reconsideration of three major conceptual hurdles

- Reliance on unavailable personnel to fill structures yet to be tested;
- Detachment from the reality of present-day South Sudan where, as described, the current (very creaky) health service is several steps away from having a County Health Department at all, staffed or not;
- Counter-productive separation – even segregation – of duties between curative and health promotion. (In such a separation, any facility-based clinician could validly argue "Not my business. Health prevention work/ health surveillance/ an awareness of health issues at various sites is the job of X.")

Existing health workers could take their existing health promotion and surveillance skills out from the existing health infrastructure within the existing working week. Transport – such as the already-delivered but now-stored bicycles – would be appreciated but not necessary. One or two of the five working days per week could be devoted to outreach work. Curative services would be impacted but not fatally: the time devoted to them would drop by a quarter (although all interventions, except emergencies, could be picked up in the remaining four days).

In the afternoon of the first day, the health worker could travel to a given village – who have already received notification through their Boma chief – and meets, establishes working relations, learns of concerns and, through his presence in the village, reassures householders that work will occur the next day. On the morning of the second day, a set of individuals are met, village members are engaged with in various ways, certain sites are inspected, plans-of-action are negotiated (see Annex 3).

Current training methods fail to deliver impact

The major one-off expense would be the costs incurred in the reorientation of the health workers. Training and reorientation can – and should (from a pedagogical point-of-view) – occur as close as possible to the actual context: the training venue could easily be a Boma, the classrooms actual villages: one week-long county training episode per state. Practical experience - and practice – will allow County health managers to continue the training in their own areas. Successful States could be used as "hothouses" to train other States.

[ix] The initiative's budget is particularly problematic. The cost of medicines needed within the initiative is excluded; the figures relate to the first year of operation only.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

The current techniques in use, while common and standard in very many contexts, continue to fail to deliver results. Managers consistently complain of a lack of impact. All health workers have attended – but perhaps not participated in - multiple workshops (Please see Annex 4, In-Service Training History). Instead, facilitators could be using transformative competency-based methodology tied into, and informed by, actual performance on the ground. Training methods themselves need to be totally transformed.

Current health education techniques are inadequate

Changes to the environment and individual behaviour patterns (in the direction of health) are fundamental interventions in the move to the villages. The existing health educators are not adequately equipped to properly deliver the messages: they need to be shown a package of set role plays (the equipment) and practiced in their delivery.

A refocus is required on:

- 'what is the new behaviour we want?'
- 'what does a person have *to do* differently from now?'

Equally, the most important link in the health education chain - that linking the educator and the consumer- is being left to the individual with the least experience, the very largely untrained volunteer. The reverse needs to be the case, those with the widest experience and deepest training need to generate communication packages upstream.

First, do the very basic health interventions

Health volunteers already attached to existing facilities – i.e. those who would be expected to be first in-line for any new training - seem to be markedly under-utilised. In the three settings investigated first-hand, no volunteers were able to demonstrate the slightest knowledge about two key – and rather fundamental – features: danger signs in a child with dehydration and simple non-medical measures to take with a child with a high fever. In fairness, few Community Health Workers themselves were able to do the same in role-plays during the observed workshop.

Consistent with the findings of the sample Health Mapping, basic elements of health services were inconsistently available. In Terekeka, neither PHC Unit, nor the PHC Centre, had a latrine. One PHC Unit had no hand-washing facilities. No soap was seen. No facility kept an Oral Rehydration corner (or supply of clean drinking water). A Primary School with 1,192 children and 28 teachers – in sight of the Ministry of Health - had eight unusable pit latrines: five were locked with lost keys, three were unfit for use; the water supply was 150 metres distant; there was no soap. (However, there was a painted picture on a main wall exhorting pupils to 'Always wash your hands with soap and water after using the latrine.')

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

In Tonj, the (otherwise impressive) PHC Unit visited had water for hand-washing and soap but no usable latrine. Neither did the primary school on the other side of the village.

The above are examples of where the verifiable disconnect between what the health worker says (or tells you to do) and what he himself actually does is likely to cause an *impasse* in behaviour change communication. The task facing the untrained village volunteer in persuading others is likely to be daunting, when the 'doctor' himself demonstrably does not attach great importance to general hand-washing and latrines.

In the remote village visited, there appeared to be no soap available at all upon request. Almost all twenty pairs of schoolchildren's hands examined during an activity in the shade-of-tree classroom had dirty fingernails and long nails.[x] There is a generalised belief - not just amongst lay people, but amongst the health workforce too – that:

health = a health facility + medicines

In fact, as the BHI document highlights in its preamble (but then largely overlooks in the detail, especially in its 'Aspect 1') the health worker as educator can do much in the existing environment.

Nomenclature has not kept up and could usefully be updated; realistic approaches based on formulae and existing structures/resources are important to rationalise allocations

Boma Health Worker could be introduced, replace, or encompass as the job title of first-level health facility workers (while their existing qualifications are retained). Outside the State capital, the most senior health person in that County could readily be called the County Health Officer. Both of these amendments signal a conceptual expansion in roles.

Volunteers, such as those attached to health facilities can be named Health Promoters. PHC Units can become Health Units; PHC Centres, Health Centres, the designation 'PHC' now having become anachronistic.

After the near-recent renaming of local government units – counties to states, etc – a follow-on change in health unit designations by the Ministry of Health would appear as apt and congruent.

[x] The children were invited to do their best in trimming and cleaning their own nails and catch the visitors under the chief's tree before the team departed. The fingers of the dozen who appeared (with now-clean fingernails) were examined and all were praised. This vignette encapsulates the difference between 'education', which may be a largely sterile activity that transmits *knowledge* – i.e. one with no product - and 'health education' which changes *behaviour* in the direction of health – i.e. one with tangible results. Re-inforcers, which were not explored on this occasion, would be needed to perpetuate changes.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

The population-formulae articulated in the Health Sector Development Plan (2012 – 2016) and the Basic Package of Health and Nutrition Service (2012), could be updated and expanded, to allow rational and flexible management approaches capitalising on existing capacity. For example, working from facility catchment areas, various sub-national health service management activities could be agglomerated amongst multiple CHDs, along the lines of the *zones de santé* in DRC.

6 Next Steps

- An approach to the national MoH to sanction a trial of the interim expansion in coverage

Costs: n days of high-level face-to-face meetings

- An approach to a third State to agree to be the trial site for the reorientation training once trial is approved (in order to test materials and gather evidence of impact)

Costs: minimal, if in agreement, the Central MoH may do the negotiation

- The securing of a budget for a sample training

Costs: $10,000 as a "sighting shot"

- The design and production of user-friendly materials

Costs: Technical Advice x 3 days; reproduction costs

- The delivery of the training in one state

Costs: Technical advice x 2 weeks

- A more detailed write-up of the week-long training package, after the event, and its measurable impact (to record the undertaking)

Costs: Technical advice x 1 week

- The design and development of a package of health education role plays, to be taught and practiced.

Costs: Technical advice x 2 weeks

- The realisation of an assessment measuring state coverage by Boma (i.e. the number of *Bomas* with a health facility) (as a prelude to possible preferential funding) – cf above notes re adaptation of www.southsudanhealth.info already ongoing

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Costs: Technical advice x 4 weeks (for all states)

- The submission of a formal proposal for the renaming of PHC Units, Centres and their apex managers in facilities supported by donors, pending approval by the central Ministry of Health

Costs: n days of mid-level preparation of formal proposal

- The design, creation and development of a package of tools, and toolbox, to support the nascent State Ministries of Health (in order to deliver the basic building blocks of management, pre-requisites for eventual ownership)

Costs: Technical advice x 4 weeks

- The implementation of the same in ten identified states

Costs: Technical advice x 10 weeks

- The design and delivery of a one week orientation workshop for inexperienced State Ministers of Health[xi]

Costs: $10,000 as a "sighting shot"

[xi] There is an anecdote about a State Minister of Health who, when community elders said there was no latrine because they had no-one to build it for them, took off his jacket, rolled up his sleeves and grabbed a spade, to their general astonishment This Minister would be the ideal facilitator for this workshop. Previous Ministers could be guest facilitators: there is currently hardly any induction episode and new Ministers must forever learn afresh.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Annex 1: Questionnaire for Boma chief

Process:

- After introductions, a rough square can be drawn in the sand/mud using a stick to represent the *boma*. This sets the context.
- The colleague translating is handed the first set of four questions, each written in (Roman) capital letters in Juba Arabic, on paper the size of a playing card (This cuts down time lost in translation and demonstrates willingness to engage. All questions were back-translated many times to confirm accuracy.)
- Each question's reply is translated before the next question is asked.
- Subsequently, a (rough) house is drawn. (This emphasises that the questions have moved on to talk about the building and its contents.)
- Later a stick man is drawn close to the building (Representing the health worker.)
- Lastly, a second person is drawn close by. The stick moving back and forth between the figures indicates communication.

A. 4 questions about health in your *boma*

Your Boma

1. "In all your boma here, you think which village is the best in health? Why?"
   Fi buma takum hini kulu, ita fikira yatu bileni al kweys fi saha? Ley?

2. "In all your boma here, you think which village is the worst in health? Why?"
   Fi buma takum hini kulu, ita fikira yatu mahaal al bataal fi saha? Ley?

3. "In all your boma, there are children they are very thin. They are how many?"
   Fi buma takum hini kulu, fi iyaal uman rigeeg jogoot shediid. Uman kam?

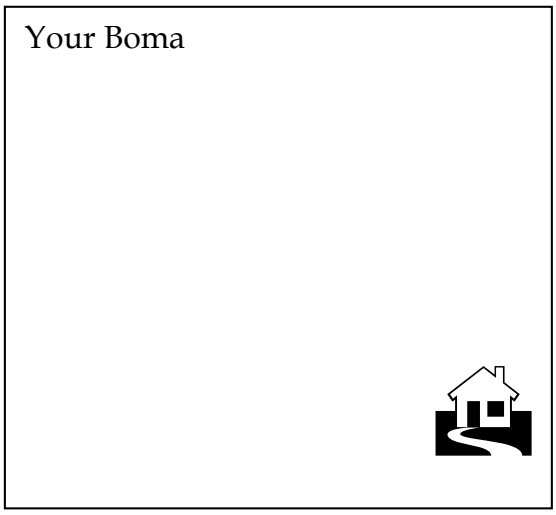
Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

4. "In all your boma, there are people with TB. They are how many?"
Fi buma takum hini kulu, fi nas endu tibi. Uman kam?

Results

The first pair of questions was not clearly answered, perhaps because the terms are themselves vague. Both questions in the second pair were answered precisely (e.g. 3, 7) although they may not have been accurate. (The original intention - to cross-check them with data from the health facility – couldn't happen: interviews were conducted away from the boma itself because of the rains.)

B. 4 questions about the health facility/facilities in your *boma*



1. "Inside your boma, there are how many health facilities?"
Juwa boma takum, isbitaalia fi kam?

2. "How many people work in the facility?"
Fi kam nas shugul fi isbitaalia de?

3. "Now, are there medicines or not?"
Hasa de, fi dawaat wala mafi?

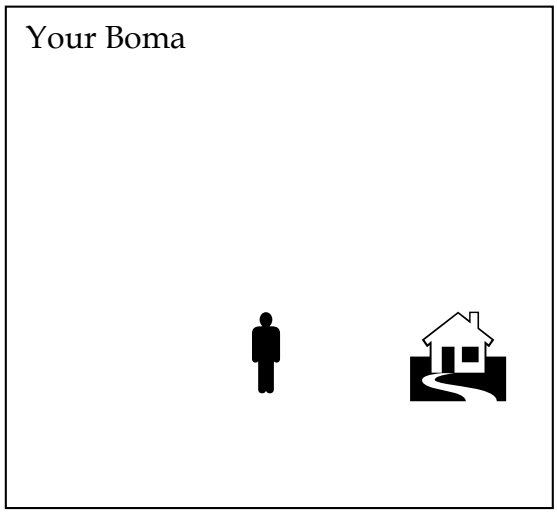
4. "What is the biggest problem of the facility?"
Mushkila al-kebiir shunuu fi isbitaalia?

Results

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Once again, all answers were precise, though possibly or possibly not accurate. The biggest single problem was often said to be secure storage space for medicines, especially space big enough for a six-month supply to cater for the rainy season. Interestingly, this is also the State Minister of Health's number one priority.

C. 4 questions about your *boma's* health worker



1. "Your 'doctor', his transport is what? He goes to villages how?"
   Diktor takum, muwasalaat to shunuu? Huwa ruwa le beleni keyf?

2. "Do you know, the diktor went to which village last?"
   Ita arifu, diktor ruwa aakir beleni yatu?

3. "The 'diktor' tells you when he is leaving the boma?" (says to you 'I'm going to another place?)
   Diktor-de worii le ita 'ana maashi mahaal tani'?

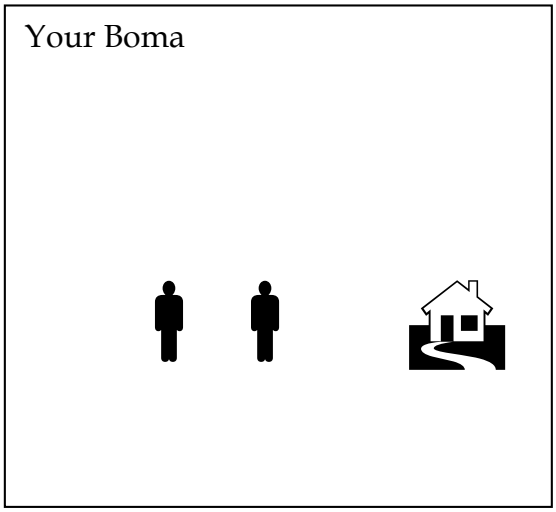
4. "His plan [of action] for this month is what? Do you know?"
   Kota to fi ashar-de shunuu? Ita arifu?

Results

All doctors walk; the chief doesn't know where he went last (probably because outreach remains uncommon and the health worker didn't travel anywhere; the health worker advises the chief when he leaves the boma; the health worker's monthly plan isn't known (probably there is none).

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

D. 4 questions about your boma's health worker and you



1. "You saw the doctor last time when?"
   Ita ainu diktor-de aakir zaman miteen?

2. "You and the doctor sat together to talk about health in the boma last time when?"
   Ita wa diktor, geni sawa wonasu kelimu saha ta boma aakir zaman miteen?

3. "The time you talked with the doctor, who was in charge of the meeting?"
   Zaman ita wonasu maa diktor-de, munuu kan musuul ma meeting-de?

4. "You made an agreement? You agreed to do what"
   Ita tofugu? Ita rudu amulu shunuu?

Last question...

"If the Minister of Health comes here today now, you will say what?"
   Kan waziir saha bi-ja hini aleela hasa de, ita bi-gul shunuu?

Results

There appears to be regular and frequent contact. The chief is definitely in charge (the question always raised a laugh.) Chiefs were able to say what they would be doing next (e.g. speak to the commissioner about the broken borehole pump.) The request was always 'we need more clinics'.

Preliminary conclusion

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Chiefs are even now major players in health service delivery within their bomas. They know what is going on and are involved in identifying needs, perhaps less so in the actual planning. Their leadership is clear (this is an unexpected result: it was anticipated that the health worker would answer primarily to technical managers.)

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Annex 2: Current Observed Health Facility Distribution and Coverage in One State of South Sudan, 2017

TABLE 1: DISTRIBUTION OF NYORI COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Four Bomas: Three PHC Units**
6000-9000	LWOKI (15vill) Lwoki PHC U
3000-6000	NYORI (6vill) Nyori PHC U WONKLORI (6v) Maridi PHC U BARI ARIE (5v) X
Comments	No PHC Centre in County. (Could be in Lwoki given population size and number of villages.) Even spread. One un-served boma. **Legend: Green = PHC Unit. White = No facility. Rectangle = Boma**

TABLE 2: DISTRIBUTION OF TEREKEKA NORTH COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Six Bomas: Three PHC Units. Two PHC Centres**
6000-9000	Muni PHC C WUDU-BORI (12v) W-B U TUKORO (5v) Tukoro PHC U MUNI (6v) Bekat PHC U
3000-6000	TOMBEK (8v) Nyori PHC C YUKARA (6v) X GABUTA (6v) X
Comments	Uneven distribution. Two un-served bomas (66% coverage). Two facilities in one boma (3 villages each). While one facility covers 12 villages. Two PHC Centres in County. **Legend: Orange = PHC Centre**

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

TABLE 3: DISTRIBUTION OF GWOR COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Ten Bomas: Thirteen PHC Units. One PHC Centre**
6000-9000	Molusuk PHCU Jobem PHC U BUJU (8vill) Lojara PHC U Lowirja PHCU Kutuknawoko Longi PHCU LONGI (12v) Kworinyang U
3000-6000	Wujunani PHCU Mokamagor U BURANGGA (7v) Gwulukuk PHCU MOGIRI (9v) X MULLA (6v) X MIRINDYA (6v) Bura PHCU
< 3000	RIJONG (7v) Rijong PHC C LANGI (8 village) X JONKOK (7v) Jonkok PHC U KAWORI (6v) Kawori PHC U
Comments	Uneven distribution. One boma with 4 facilities, two with three, three with none.

TABLE 4: DISTRIBUTION OF GEMEIZA COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Five Bomas: Four PHC Units. No PHC Centres**
> 9000	GORI (12v) Wanyang U
6000-9000	

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

3000-6000	
<3000	KORSOMBA (4v) Korsomba U; GULUBAS (3v) Yabisak PHC U; KANYAWAI (3 villages) X; GEMEIZA (3) Gemeiza U
Comments	No PHC Centre in County. Population estimates not updated. Now three times as large due to conflict displacement. Kanyawai seriously crowded (Sep 17).

TABLE 5: DISTRIBUTION OF TEREKEKA CENTRAL COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Five Bomas: Two PHC Units. Two PHC Centres**
> 9000	Hospital; BUKO (14v) Digala PHCC
6000-9000	
3000-6000	JUBA BAYAK (5v) X; KOGGI (6v) X; JOR (7v) Lokweni U; NYIKABUR (4v) Nyikabur
Comments	State Hospital is rudimentary. Non-hospital PHC Centre is good practice. Two un-served bomas.

TABLE 6: DISTRIBUTION OF TALI COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Nine Bomas: Eight PHC Units. One PHC Centre**
3000-6000	JOBUR (6v) Mading C; JAMING (5v) Kiu PHC U; ATTIT (5v) Attit PHC U; BARI KIROT NYUMBO (4v)
	MOKIDO (5v) Mokido U; PAGARA (4v) Pagara PHC U; JOKARI (4v) Mina PHC U; MIJIKI (5v) Mijiki U

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

<3000	DARI (5v) Dari PHC U
Comments	Ideal distribution. Area supported by Catholic Diocese.

TABLE 7: DISTRIBUTION OF TINDILO COUNTY HEALTH FACILITIES, BY BOMA

Head of Population	**Five Bomas: Two PHC Units. One PHC Centre**			
6000-9000	MUNDARI BURA (15v) M-B PHC C			
3000-6000	SOMARING (8v) Peri U	GWORONGA (4v) X	BURENG (10v) Nyangga U	RUME (13v) X
Comments	Two un-served bomas, one of which has 13 villages			

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Annex 3: Reorientation Training Materials

Working in a Village:

10 things before

Do:

Fix day with Sultaan	**Call village** (Sultaan can do this)	From register, **write names** (and diagnosis) of ex-patients

Take: For you to use (and for role-modelling)

Bicycle (if there is one)	Mosquito net	Soap

For sick children you find (and for teaching)

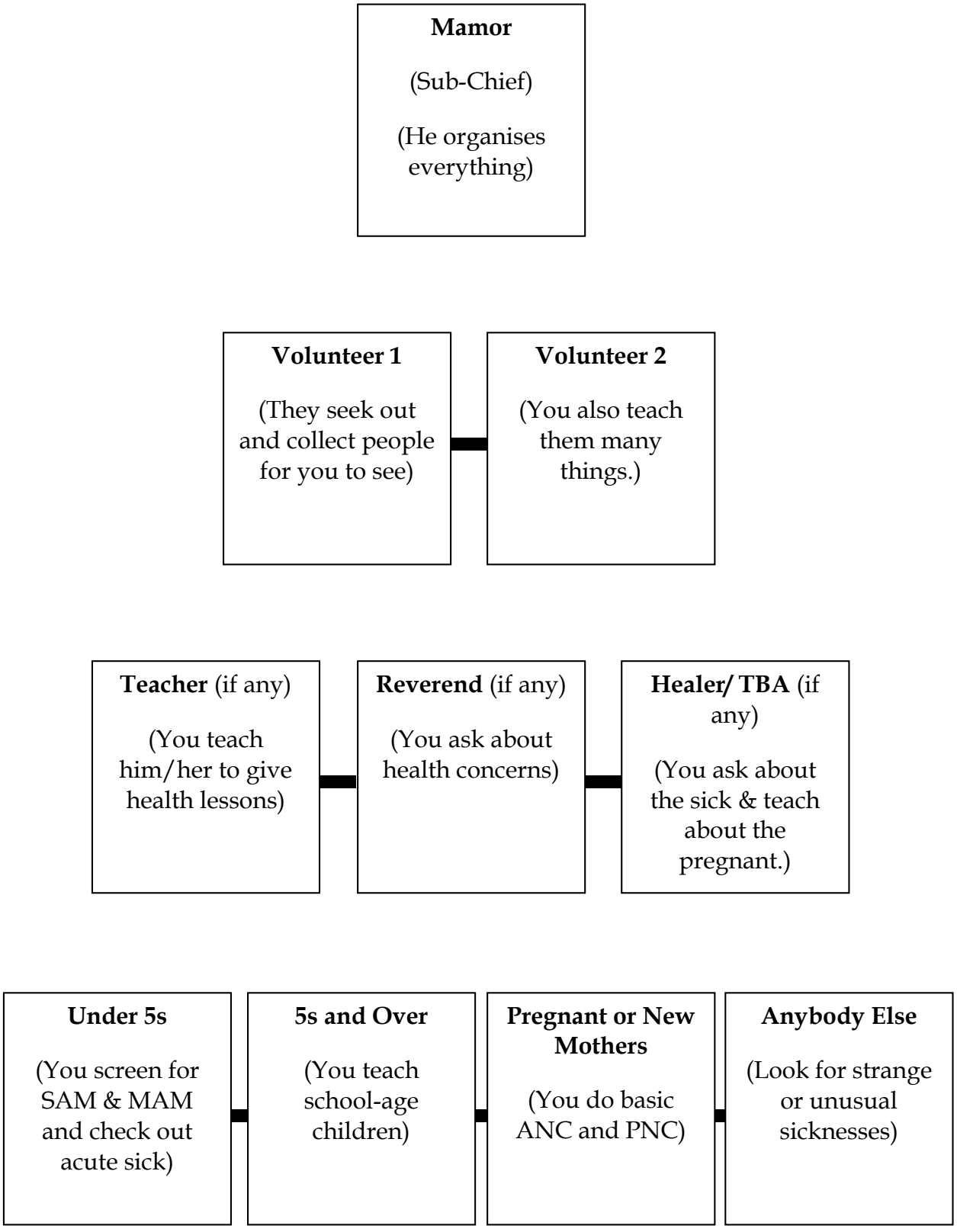
MUAC tape	Some RUTF packets	Some ORS packets

For Referrals and planning

Pen & Paper

Prepared as part of "Forward-looking ignment; This study is funded by the European Union. Disclaimer: The udy do not necessarily reflect the views of the European Union

10 people to see at the Village



Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

10 things to look for or look at

Meeting Place Where the sub-chief has chosen as the place for people to come (e.g. mango tree)		**People who come to see you**

Water

Water Source	**Washing Place**	**WaSH-friendliness** of school

Sanitation

Inside Latrines (if any)	**Signs of Open Defecation**	**Rubbish Tip/ Rubbish**

Hygiene

Inside Households		**Volunteers** (how they teach others)

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

10 things after

Plan-of-Action

Mamor	**Volunteers**	**Patients**	**You**
What he will do before your return visit	What they will each do before your return visit	What they (or the carers) will each do for themselves	What you will do at your PHC Unit

Thanks:

Mamor	**Volunteers**

De-briefing

Mamor	**Manager**	**Sultaan**	**File and Map**
Feedback Sandwich: Good, (What could be done) Better, Best	New patients Worries	Your plan and Mamor's plan	Report on names and numbers

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Annex 4: Health Worker In-service Training History

Health Worker Attendance at Workshops (self-reported)

All fifteen participants at the Integrated Management of Childhood Illnesses workshop held in Terekeka (18-21 Sept) were interviewed about their in-service training history. Some few registered nurses and clinical officers were among a majority of Community Health Workers, some trained, others not formally trained Results are below.

Two participants had attended a small number (two and three workshops, respectively). Two each had attended six, seven, eight and nine workshops. Further individual participants had attended ten, eleven, twelve, thirteen and fourteen workshops. In total 125 workshops had been attended, or an average of over eight each health worker (range: 2 – 14).

Only six participants were asked to list fully the workshops they remembered. From the workshop titles mentioned – e.g. 'Guinea Worm Eradication', '[Prevention of] Gender-Based Violence' - all but one were devoted to vertical programs and of five days duration. Only one, that of 'Facility Management', covered non-clinical areas. One participant had attended the same workshop - Integrated Management of Childhood Illnesses – four times.

The length of service as health worker ranged between four and nineteen years, with a cumulative total of 180 years, an average length of service of twelve years.

Amongst this selected group – it was not clear why some from the catchment area had been invited, others not - the average health worker attended roughly eight workshops in twelve years' service, or two workshops every three years.

Comments: Three days' refresher training per year is not excessive. No central record (of who had previously attended what) was available nor sought by organisers. The methodology was extremely classical. Pre- and post-tests were overlong (thirty questions) and identical (this tests memory rather than understanding).

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Annex 5: People Interviewed

Annex 5: People Interviewed

Terekeka State
Honorable Juma Jana Bashir, Minister of Health (and Acting Governor)
Dr Emmanuel Buyu, Director-General
Paulino Pitia, County Health Department Officer
Oliver Lado, Finance & Administration Officer
Santino Modi, Monitoring & Evaluation Officer

Michael Juma, Surveillance Officer
Father Matthew Legge, ex-Minister of Health
John Lagu, Facilities Manager, ADRA (Lead Health NGO in State)
Stephen Asobasi, Project Manager, ADRA
ADRA Field staff (x4)

Philip (...), Acting Minister of Information
Giftinho & David from SAADO (Nutrition support NGO)
School Director, Lojara
Santino, CHW, Lojara PHC Unit
Santino Beru, CHW, Gemeiza PHC Unit

Garbino Nyomba, Clinical Officer, Muni PHC Centre
Garbino Lado Santos, CHW (untrained) Lwoki PHC Unit
Daniel, CHW, Molusuk PHC Unit
EPI Volunteer, Molusuk PHC Unit
TBA (untrained), Molusuk PHC Unit

Reverend, Loyawi Village, Molusuk Boma, Reggo Payam
Teacher, Loyawi Village
Paramount Chief, Terekeka North
Paramount Chief, Reggo Payam
Paramount Chief, Rijong Payam

Commissioner, Gwor County
Chief, Jonkok Boma, Gwor County
Chief, Mogiri Boma, Gwor County
Chief, Gabuta Boma, Terekeka North County
Dr Juma, Private clinic owner

Hon Michael John, MP for Tindilo County
School Director, Terekeka Primary School

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

Tonj State
HE Governor of Tonj State
Honorable Lual Longar Adhal, State Minister of Health
Honorable, Minister for Community Development
Honorable Makana, Minister for Local Government
Dr Mawein, D-G MoH
Jogn Acot, Director Finance & Administration, MoH
Deputy Commissioner, Mabior Yar County
Francesca, Program manager CCM

Daniel Arop, In-Charge Mabior Yar PHC Unit
Joseph Mabior, Deputy In-Charge
Johnson Machar, County Health Officer, former Tonj South
Yuot, Local government representative, Mabior Yar
Village chief, Ayuaath

Daniel Bol, Secondary School Teacher, Tonj (native of Mabior Yar)
Mother of one SAM child
Mother of one MAM child
Abraham, in-charge Stabilisation Unit, Tonj Hospital
Dr Jonathon, expat doctor at IDAT not-for-profit hospital

Wau State
Honorable Peter Upieu, Minister
Commissioner, Kwajina County
Medical Assistant, Kwajina PHC Centre
Pharmacist, Kwajina PHC Centre

About the Author

For reflections on the functioning of a rural health facility in a resource-poor environment, Mark Beesley drew on his experiences as the nurse in-charge of a remote rural health post with a catchment area hosting eleven villages during the Nicaraguan Revolution (1984-85). Considerations on the rational distribution of the health network and its workforce were informed by recent work in Timor-Leste. His experiences in Zambian slum schools and Open Defecation Prevention programs in India contributed to his reflections on the delivery of WaSH behaviour changes messages, while other work in India, Sudan and Niger aided in his contemplation of the issues around the case-finding of children with Severe Acute Malnutrition. Contributions to the Ethiopian Health Extension Worker program and his experiences as a provincial in-service trainer and supervisor in Somaliland, Mozambique and Angola (1989-2001) guided his assessment of HRH potential.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union

As the team-leader for a joint WHO-AMREF nationwide HRH inventory (2005-06) he lived in Juba and visited Malakal, Rumbek, Bor, Maridi and Aweil. In 2010, as lead technical advisor for a nationwide Health Training Institute survey and other work, he again lived in Juba and visited Wau, Bentiu, Ler, Yei, Malakal and Rumbek.

Prepared as part of "Forward-looking structure and options" assignment; This study is funded by the European Union. Disclaimer: The views expressed in this study do not necessarily reflect the views of the European Union