

Annex -1

Draft hospital manager questionnaire:

Facility Name _____

State _____

Information provided by:

Manager

Medical Manager

1. What is the Hospital Capacity/ Bed Number?

2. What are the services provided by the facility?

Service	Yes	No
Outpatient care		
Small Operations		
Medicine Ward		
Surgery Room		
Obs & Gyn Ward		
Pediatric Ward		
Ophthalmology		
Dermatology		
ENT		
Orthopedics		
Urology		
Psychiatry		
Chest		

a. Other specialties (please list):

1.

2.

3.

4.

5.

3. What is the number of specialized physicians required as per the hospital organogram?

4. What is the number of specialized physicians currently serving in the facility?

5. What is the number of registrars required as per the facility organogram?

6. What is the number of registrars currently serving in the facility?

7. What is the number of medical officers required?

8. What is the number medical officers currently serving in the facility?

9. What is the number of House officers required?

10. What is the number of house officers currently serving in the facility?

11. What is the number of the current vacant positions

- a. One
- b. Two
- c. Three
- d. Four
- e. Five or more

12. When did these positions become vacant at?

*Please name the position and enter the date at which the position became vacant.

#	Position description	Date the position became vacant DD/MM/Year
1.		
2.		
3.		
4.		
5.		
6.		

7.		
8.		
9.		
10		

Please circle the correct answer

13. Is the facility in a rural or urban area?
 - a. Rural
 - b. Urban
14. Is the facility a: (as per the health facilities and health services characterization document)
 - a. Locality Hospital
 - b. Locality General Hospital
 - c. State General Hospital
 - d. State Specialized Hospital
 - e. Specialized Center
15. Does the facility contain and equipped and functioning surgery room?
 - a. Yes
 - b. No
16. In your opinion the facility well maintained?
 - a. Very well maintained
 - b. Fairly maintained
 - c. Poorly maintained
 - d. Other (specify _____)
17. In your opinion what is the level of cleanness of the facility:
 - a. Very good
 - b. Good
 - c. Average
 - d. Poor
18. Is there a good public school in the neighboring area?

- a. Yes
 - b. No
19. Is there a private school in the neighboring area?
- a. Yes
 - b. No
20. Is there a specialist that supervise the doctors rotating in the facility?
- a. Yes
 - b. No
21. Does the facility provide any incentives or top-ups to doctors?
- a. Yes
 - b. No

Annex-2:

Health center manager questionnaire:

Facility Name _____

State _____

Information provided by:

Manger

Medical Manager

1. Is there a family physician providing services at the facility?
 - a. Yes
 - b. No
2. If yes is s/he providing:
 - a. Full time services
 - b. Part time services
3. If no, when was the last time a family physician was assigned to the facility?
 - a. Less than 3 months
 - b. 6 Month
 - c. 1 year
 - d. More than one year
4. Please enter the last date where a family physician was providing services at the facility?
DD/MM/Year
__/__/____
5. Is there a general physician providing services at the facility?
 - a. Yes
 - b. No
6. If yes, what is their level of specialty:
 - a. House officer
 - b. Medical officer
7. If yes is s/he providing:
 - a. Full time services
 - b. Part time services
8. If no, when was the last time a general physician was assigned to the facility?
 - a. Less than 3 months
 - b. 6 to 11 Months
 - c. 1 year
 - d. More than one year

9. Please enter the last date where a general physician was providing services at the facility
DD/MM/Year
__/__/____
10. On average what is the time required for the vacant position post to be filled?

11. If there is no family physician or general physician, what is the type of health cadre providing health at the facility:
- Medical Assistant
 - Nurse
 - Other please specify_____

Annex-3

Semi-Structured Interview Guide

1. What is your opinion about the vacant physicians' post at FMOH facilities?
2. In your opinion, what are the factors that affect physicians' availability and retention in health facilities?
3. In your opinion, how can physicians' availability be improved in MOH facilities? What is the role of the FMOH/SMOH?
4. When a vacancy position arises, what are the steps taken by the facility and the SMOH?
5. What is the average time required to fill an arising vacancy?
6. What is the role of the facility, SMOH, and FMOH?
7. How easy or complicated the process of filling a vacancy is?
8. What are the factors that affect the time required to fill arising physicians' vacancies?
9. In your opinion, is the health system capable of retaining the minimum number of physicians required for providing health services?
10. In your opinion, how can the time required to fill physicians' vacancies be minimized?

Annex 4:

Denominator Calculation

To determine the denominator for calculating vacancy proportion per facility we relayed on the FMOH Specification and Standards for the Health System in Sudan, Part Two: Description and Specifications of Health Services and Health Units Document (hereinafter referred to as the Document).

To set a reasonable denominator, we decided to be very conservative and use the minimum required numbers of physicians as per the details provided in the document. Accordingly, where there is a range of units' number per facility, e.g., 2-6 units we used the minimum number of units which is two. Also, For hospital where additional specialties should be provided in addition to the 4 main specialties, we calculated only one physician per specialty for the health facility. We based this estimation on the targets of the FMOH “The project of localization of micro-specialties and retention of specialists” initiative for localization of the different health specialties in the states.

Also, to ensure the denominator for vacancy rate calculation is as accurate as possible, the services provided at each facility were enquired about as part of the data collection questionnaires to re-affirm the number of units at the SGH and SSH. Also, the questionnaire included a question about the availability of an operation room. In Locality General Hospital (LGH) and, Specialized Centers (SC) that did not include an operating room, the surgery and Obstetrics and gynecology units and anesthesia physicians were not included as part of the denominator.

Model Health Centers (MHC):

While collecting data we have found several health centers (MHC) went through a change of scope and are providing a wider range of health services and include a larger number of physicians and specialized consultants as service providers. Unfortunately, the document did not provide any details on MHC, and we were not able to find adequate documentation regarding the standard number of physicians that should provide services at that level. We decided to use the baseline for locality hospital as a denominator for these centers.

Table 1: Denominator per Facility Type		
#	Facility Type	Denominator
1.	Family Health Centers	2
2.	Model Health Centers	3
3.	Locality Hospital	3
4.	Locality General Hospital	18
5.	Locality General Hospital*	9
6.	State General Hospital	86
7.	State Specialty Hospital one specialty	31
8.	State Specialty Hospital one specialty*	30
9.	State Specialty Hospital two specialties	62
10.	State Specialty Hospital two specialties*	60
11.	Specialty Center one specialty	27
12.	Specialty Center one specialty*	26
13.	Specialty Center two specialty	54
14.	Specialty Center specialty*	52

Annex 5:

Determination of cut off points for the logistic regression model

a. Setting the cut-off point for High Vs. Low Vacancy Rate:

We selected the point of "less than 50% or equal to or more than 50%" as a cut off point for determining low physicians' availability conducting logistic regression because the data was mainly aggregated at or below 50% and above 66%. Also, because more than 50% of the sample, 276 health facilities, were Health Centers which require two physicians to provide service one of them a family physician and, since the family physician program is relatively new, so we expect that number of practicing family physicians will be limited. Hence, we considered Health Centers where one physician is available have high physicians availability.

b. Setting the cut of the cut-off point for the length of vacancy (Short or long):

After examining the data, we found the data is naturally grouped into two main categories with 38% of the facilities with less the 3-month average time required to fill vacancies and 34% in the category of one year or more average time required to fill vacancies. Also, 14% of the data was in the category "vacancy length unknown." Therefore, we decided to use the midpoint of 6 months or less as a cut-off point below which the vacancy is considered to be short to account for the variation between all the facilities in the logistic regression model.

Annex -6:

Table 1: Average Time to Fill Physicians Vacancies by the selected Facility Characteristics											
Characteristics		Average Time to Fill Physicians									
		< 3 months		3-6 months		7-11 months		1 year or more		Do not Know	
		n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
State	Khartoum	78	55	20	14	5	4	25	18	13	9
	Other	11	32	33	9	14	4	134	38	58	17
Area Type	Urban	77	53	16	11	5	3	31	21	16	11
	Rural	111	32	37	11	14	4	128	37	55	16
Public School in the Area	Yes	164	37	47	11	18	4	150	34	64	14
	No	20	56	4	11	1	3	6	17	5	14
Private School in the Area	Yes	81	53	17	11	7	5	30	18	17	11
	No	92	29	34	11	12	4	125	40	52	17
Private Hospital in the Area	Yes	63	53	14	12	6	5	27	23	8	7
	No	126	35	36	10	13	4	130	36	60	16
Maintenance Level	Good	103	44	22	9	12	5	66	28	32	4
	Average	39	28	19	13	4	3	56	40	23	16
	Poor	47	41	12	11	3	3	37	32	15	13
Cleanliness Level	Good	141	41	31	9	14	4	109	32	47	14
	Average	34	31	19	17	4	3	36	32	19	17
	Poor	14	39	3	8	1	3	14	39	4	11
Fitness to Provide Services	Fit	28	41	4	6	1	1	23	34	12	18
	Average	48	34	21	15	4	3	43	31	24	17
	Not Fit	100	39	25	10	14	5	85	33	32	13

Table 2: Association between Average Time Required to Fill Physicians Vacancies and Facilities and Area Characteristics

Dependent Variable Average Time Required to Fill Physicians Vacancies Long (7 months or more) vs. Low (6 months or less)

Variable	Base Comparison	Overall			KRT			Outside KRT		
		P-value	OR	95% CI	P-value	OR	95% CI	P-value	OR	95% CI
State	Other vs. KRT state	<0.001	3.5	2.1- 5.4						
Area Type	Rural vs. Urban	<0.001	2.5	1.6-3.9	<0.001	3	1.3-7	0.471	1.3	0.7-2.3
Health Services Level	PHC vs. Tertiary	0.604	1.2	0.6-2.8	0.259	0.5	0.2-1.8	0.378	1.6	0.6-5
	Secondary vs. Tertiary	0.796	1.1	0.4- 3.1	0.496	0.5	0.06-3.2	0.672	1.3	0.4-4.8
Maintenance Level	Average vs. Good	<0.05	1.7	1.04-2.6	<0.05	3.3	1.7-11	0.477	1.2	0.7-2
	Poor vs. Good	0.741	1.1	0.7- 1.8	<0.05	3	0.9- 4.3	0.586	0.8	0.4-1.6
Cleanliness Level	Average vs. Good	0.906	1.03	0.6-1.6	0.847	0.9	0.2-2.7	0.572	0.9	0.5-1.5
	Poor vs. Good	0.574	1.2	0.6-2.6	0.397	2.2	0.3-14	0.720	0.9	0.4-1.9
Fitness to Provide Services	Average vs. Fit	0.516	0.9	0.5-1.3	0.737	0.9	0.3-2.1	0.520	0.8	0.5-1.5
	Not Fit vs. Fit	0.857	0.9	0.5-1.7	0.660	0.6	0.03-4.1	0.261	0.7	0.4-1.3
Public School in the area	No vs. Yes	<0.05	0.4	0.1-0.8	0.348	0.5	0.1-1.8	0.233	0.5	0.1-1.5
Private School in the area	No vs. Yes	<0.001	2.9	1.9-4.6	0.895	1.1	0.4-2.5	<0.001	3.1	1.7-5.8
Private Hospital in the Area	No vs. Yes	<0.001	2.1	1.3-3.3	0.336	0.7	0.3-1.5	<0.01	2.5	1.3-4.8

