

**Basic Health and Education Services in North
Kordofan: Report of a Facility Survey and Focus
Group Discussions**

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1.1. Introduction:

Sudan is the largest country in Africa. It has an area of 2.5 million km². It is characterized by a strategic geographical location, that links the Arab world to Sub Saharan Africa, and it shares its borders with 9 countries, where the Sudanese population and those of the neighboring countries move freely across these borders. The government adopted the federal system in 1994. Decentralization was introduced as a system of governance compatible with the needs of the multi-ethnic and multi-cultural society of Sudan. The country is divided into 26 states and 134 Localities. The system is founded upon a multi-tier government: federal, state and local governments. The federal level is concerned with policy making, planning, supervision and co-ordination. The state governments are empowered for planning, policy making and implementation at state level. A number of problems appeared during the implementation of the federal system, the most prominent being uneven distribution of financial resources and manpower between states and between rural and urban areas (1).

Sudan is classified as a low-income country by World Bank standards. On the Human Development Index devised by UNDP, human development is also extremely low in Sudan. In 2002, Sudan ranked 139 out of 173 countries for which the index was calculated. Life expectancy at birth, a measure of the general health condition and an indicator of the standard of living was estimated around 54 years, about the average of least developed countries(1).

Economic reform packages have been implemented since 1992. Encouraging results in curbing macroeconomic imbalances and inflation were obtained. It resulted in revival of economic growth and increased per capita income. However, widespread poverty, highly skewed income distribution and inadequate delivery of social services remain serious problems (1).

Poverty and social impact analysis (PSIA) refers to the analysis of the distributional impact of policy reforms on the well being or welfare of different stakeholder groups, with particular focus on the poor and vulnerable (2).

In fact, a review of fifteen Poverty Reduction Strategy Papers (PRSP) shows that poverty strategies commonly focus on enhanced expenditure programs (especially in health, education, water and sanitation, and roads and infrastructure); institutional reforms to improve governance (such as decentralization, civil service reform, and tax

reform); and structural reforms (including trade reform, privatization, financial sector reform, and agriculture sector reform) (2).

Since 1997, the annual growth of the economy has been around 5-6% and inflation rate has come down to single digit. However, this growth has not yet been translated into improved living standards for the majority of the Sudanese people. At the end of 2001, Sudan's external debt was estimated at US \$ 20.9 billion, equal to 180% of GDP (1).

Globally, health spending has grown substantially over the last 25 years, driven largely by rapid changes in technology and increasingly complex institutions for financing and delivering care. Yet in the world's poorest countries, health spending has grown slowly, if at all (3).

Consequently, there is great inequality in global health spending today. Countries of the Organization for Economic Co-operation and Development accounted for less than 20% of the world's population in the year 2000 but were responsible for almost 90% of the world's health spending. The African Region accounts for about 25% of the global burden of disease but only about 2% of global health spending (3).

In the world's poorest countries, most people, particularly the poor, have to pay for health care from their own pockets at the very time they are sick and most in need of it. They are less likely to be members of job-based prepayment schemes, and have less access than better-off groups to subsidized services (3)

Policy decisions about financing mechanisms have multiple effects. They influence how much money can be mobilized, how equitably those resources are raised and applied, and the efficiency of the resulting services or interventions (3).

In low-income countries, with annual per capita of less than US\$ 1000, health-financing discussions are dominated by the fundamental constraint of too few resources. In most of these countries, only 1-3% of gross domestic product is spent on health, and, because their capita income is so low, this translates into health spending per capita of between US\$ 2 and US\$ 50. Even if these countries spent 10% of their income on health services, the investment in low-income countries, with annual per capita of less than US\$ 1000, health-financing discussions are dominated by the fundamental constraint of too few resources. In most of these countries, only 1-3% of gross domestic product is spent on health, and, because their capita income is so low, this translates into health spending per capita of between US\$ 2 and US\$ 50. Even if these countries spent 10% of their income on health services, the investment if spread

equitable across the population, would suffice only for very rudimentary health care. Public policy should not allow fees at point of service to become an obstacle for obtaining necessary care, or become a catastrophic financial burden on households (3).

Health is the basis for job productivity, the capacity to learn in school, and the capability to grow intellectually, physically, and emotionally. In economic terms, health and education are the two cornerstones of human capital, which Nobel Laureates Theodore Shultz and Gary Becker have demonstrated to be the basis of an individual's economic productivity. As with the economic well being of individual households, good population health is a critical input into poverty reduction, economic growth, and long-term economic development at the scale of whole societies (4).

The adoption of the Poverty Reduction Strategy Paper approach and of the Millennium Development Goals has led to an increased need for more systematic analysis of the poverty and social implications of reforms (2).

1.2. The rationale:

- The currently available information of the overall resource envelope for both the health and education sector in Northern Kordofan state is insufficient. The generated information from the study could be used for future planning to scale up and improve efficient utilization of the available the resources at the state level.
- The decentralization of responsibilities is expected to be accompanied by the necessary transfers of resources from the center to the state. The conduct of such study in Northern Kordofan can provide information about the resource transfers from the center to the state.
- The state and locality capacity to absorb the transferred resources from the center needs to be explored and documented.
- Little is known about the revenues available for the localities in Northern Kordofan to fund their social responsibilities including health and education. It is fundamental to identify the revenues, their sizes, the spending mechanisms and procedures at the locality level and as well impact of service utilization and quality.

- In practice, policies on fees depend on the population's capacity to pay, its impact on utilization, the kinds of services being provided, and the impact of fees on the quality and availability of services (5). Information on the issues of service acceptability, accessibility and utilization at the state and locality levels are expected to facilitate the process of policy changes and reform.

1.3. The objectives:

The overall objective of the study:

To assess the impact of increased public spending on the health and education services in Northern Kordofan State aiming to provide information on the resource envelop at the state and locality levels.

The study is composed of three components:

1.3.1. Locality financing of health and education services:

The objectives of the component include:

- a) To examine the public expenditures of the locality administrations aiming to quantify budgets, expenditures and allocations for the health and education services.
- b) To analyze the financial capacity and processes at the locality level aiming to streamline the capacity of the locality, their receipt and allocation of the transfers from the state and federal resources.

1.3.2. Health and education facilities survey:

The objectives of the component include:

- a) To examine the financial flows and management system of different resources at the facility level including budgets, users' fees for services, salaries and other sources.
- b) To review the available service statistics on utilization aiming to identify the level of service utilization and the barriers impeding the utilization.
- c) To measure simple indicators of technical quality of services including drugs and textbooks supplies, staff salary receipts, absenteeism rates, drop out rates.

1.3.3. The views of the clients:

The objectives of the component include:

- a) To assess the perception of the service users aiming to generate qualitative information on accessibility, affordability, utilization and barriers to utilization.
- b) To examine the client satisfaction with the provided services and its quality aiming to measure attributes such as waiting time, privacy and ease access of the provided services.

2.1. The research methodology:

a) Study design:

Facility-based descriptive study.

b) Study area:

The study was conducted in North Kordofan State, which is one of the Western states. The state shares its borders with the five states namely: Northern State from the north, North Darfur from the west, South Kordofan from the south and Khartoum and White Nile States from the east. The total population of the state at the time of the study was estimated to be 1554000(6). The state is subdivided administratively into five localities namely:

- **Shaikan locality.**
- **Um Rwaba locality.**
- **Bara locality.**
- **Sodary locality.**
- **Gabrat El Sheikh**

Each locality is subdivided into administrative sectors. Each sector is composed of a number of villages.

Health facilities in North Kordofan:

<i>Type of the health facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	14	2.5
<i>Health center</i>	37	6.7
<i>Dispensary</i>	90	16.2
<i>Dressing station</i>	82	14.8
<i>Primary health care unit</i>	333	59.8
<i>Total</i>	556	100

Primary and secondary schools in North Kordofan State

<i>Type of the school</i>	<i>Number</i>	<i>Percentage</i>
<i>Primary</i>	1187	92.3
<i>Secondary</i>	99	7.7
<i>Total</i>	1286	100

c) The study population:

Locality financing of health and education services:

The study population of this component was composed of:

- The state directors of the health and education services.
- The directors of the financing units at the state level.
- The personnel in charge of the financing units at the locality level.
- The state coordinators of the vertical programs i.e. EPI, SNAP.
- The directors of the supporting units at the federal level.

Health and education facilities survey:

The study population of this component was composed of:

- The personnel in charge of the financing affairs at the facility level.
- The health care providers.
- The schoolteachers.
- The statisticians/statistical clerks at the facility level.

The views of the clients

The study population of this component was composed of:

- The health service users/non users.
- The parents of the school children.
- The schoolchildren.
- The community leaders.

d) The Study variables:

The list of variables of component (1):

1. Annual allocated state budget for health (for the last five years).
2. Annual allocated state budget for education (for the last five years).
3. Percentage of allocated budget for health from the total state budget.
4. Percentage of allocated budget for education from the total state budget.

5. State released versus allocated budget for health.
6. State released versus allocated budget for education.
7. State spent versus released budget for health.
8. State spent versus released budget for education.
9. Annual locality budget for health (for the last five years).
10. Annual locality budget for education (for the last five years).
11. Total federal transferred budgets for health (for the last five years)
12. Total federal transferred budgets for education (for the last five years).
13. Percentage of transferred budget from the state to the locality for health
14. Percentage of transferred budget from the state to the locality for education.
15. Breakdown of the state budget for health.
16. Breakdown of the state budget for education.
17. Breakdown of the locality budget for health.
18. Breakdown of the locality budget for education.
19. Financial processes at the state and locality level including number of steps for an approval of a budgetary item.
20. The time spent for approval of a budgetary item at the state and the locality level (days).
21. Human resources of the state financial units.
22. Physical resources of the state financial units.

The list of variables of component (2):

23. Financial sources and their financial management process within the selected health facilities.
24. Financial sources and their financial management within the selected schools.
25. User's fees level within the selected health facilities.
26. Expenditures within the selected health facilities including salaries, drugs, supplies and operating costs.
27. Number of the health facility users per year.
28. Number of the students per selected schools.
29. Categories of the health facility users: Women, men, and youth.
30. Number of the admitted cases in the selected hospitals.

31. Number of the beds in the selected hospitals.
32. Bed occupancy rate in the selected hospitals.
33. Student's enrollment rate.
34. Student's survival rate.
35. Student's completion rate.
36. Staff salary receipts.
37. Absenteeism rate among the students in the selected schools.
38. Absenteeism rate among the staff in the selected health facilities.
39. Absenteeism rate among the staff in the selected schools.
40. Human resources of the selected health facilities.
41. Human resources of the selected schools.
42. Physical resources of the selected health facilities.
43. Physical resources within the selected schools.
44. Drug supplies within the selected health facilities.
45. Textbooks and other supplies within the selected schools.

The list of variables of component (3):

46. Accessibility of the health facilities by the users.
47. Accessibility of the schools for the students.
48. Affordability of the health services by the users.
49. Affordability of the school fees for the students.
50. Barriers of health services utilization.
51. Barriers of education services utilization.
52. Community supporting systems for health and education services.
53. Perception of the quality of health services by the users.
54. Perception of the quality of education services by the students/parents.
55. Measuring quality attributes including privacy, waiting time and ease access of services.

e) **The Study instruments:**

The following instruments were used for data collection:

For component (1):

- **Structured interviews** with the key personnel responsible for the health and education services at the state and locality level. The main outlines of the structured interviews include:
 - Personal data: name, job title and date of interview.
 - Qualifications, duties and responsibilities.
 - Financial processes within the state and the locality.
 - Mechanisms of budget development for health and education at the locality.
 - How the federal resources are being transferred? What is the magnitude of the transferred resources from the state and federal level?
 - How the transferred resources are being translated into improvements in basic health and education services?
 - What other financial sources are being mobilized for health and education services?
 - How the locality budgets for health and education are being distributed to the facilities?
 - What are the rules for identifying the financial needs of each facility?
 - The existence and efficiency of the financial monitoring system at the state and the locality level.
- **A Checklist:** A standard check list was developed to collect data about the variables of component (1) such as allocated budgets, released budgets and budgetary breakdown etc.

For component (2):

- **Standardized administered questionnaire:** with the financing personnel within the selected health facilities and schools. The main outlines of the questionnaire include:

- Characteristics of the facility such as name, location, size, type, years of operation, hours of operation and catchment population,
 - Number and categories of the current staff members, salaries, allowances, incentives, regularity/delays of salaries.
 - Financial flows within the facility: sources, transferred budgets from the state during the last five years, transferred budgets from the federal level during the last five years,
 - Users fees: how the fees were settled, collected, pooled and spent. In addition information about the cost of investigations, drugs, cost of major disease episode treatment i.e. cost of treatment for an episode of malaria.
 - What are the mechanisms developed to support the poor users? What are the advantages and disadvantages of these mechanisms?
 - The facility annual budget: Total, breakdown, proportion of users fees from the facility budget, proportion of transferred budget from the state level, proportion of transferred budget from the federal level.
 - Expenditures by category: salaries, drugs, supplies, fuel & maintenance, other operating costs
- **Check lists:** Standard checklists were developed to collect data on: inventory of the health facilities and schools, absenteeism rate, number of pupils left the school due to non-payment of fees, additional fees paid by the pupils per year, admission rate, outpatient attendants, referred cases per months, information on the emergencies services users.

The questionnaire, the checklist and the interview format were pre-tested before its use for data collection by the interviewers. The interviewers were

trained on interviewing techniques, communication skills, data cleaning and editing.

For component (3):

Focus group discussions with the key informant: In the catchment areas of the selected health facilities and schools, focus group discussions with various age groups and both genders were held in order to probe deeply in the issues of accessibility, affordability, availability, economical, social, environmental, economical and cultural barriers of service utilization. Thus the groups were mixed of both service users and non-users. Each focus group was composed of about 10 persons. Of

r each group a moderator was assigned to organize, record and report on the group discussion. The moderators were trained on group dynamics, communications, and mechanisms of recording and reporting of group work.

A training workshop was held in order to train the interviewers and the moderators for 6days (40 hours). The training was skill-based and focused on the practical usage of the study instruments. (Attached guidelines for the focused group discussion)

f) **The Sample:**

The sample size of the health and education facility survey was calculated using the following formula:

$$N = \frac{(Z^2) (PQ)}{\epsilon^2}$$

Where:

N: sample size.

Z: the normal standard deviate at 0.05. This is constant as 1.96.

P: the frequency of occurrence of events. This is equal to 0.5

Q: the frequency of non-occurrence of events: 1-P= 0.5

&: Degree of precision, expected to be (0.04)

For the purpose of this study, the most important variable used for calculating the sample size is: **the number of health and education facilities received**

transferred budgets from the state and federal resources. As no previous studies were available, the variable is expected to be 50%. Thus the P value is 0.5 and the q value is (1-0.5) which is equal to 0.5.

Using the above-mentioned formula the sample size for the health facility survey was:

$$N = \frac{(1.96)^2 (0.5 \times 0.5)}{(0.04)^2}$$

$$= 3.84 \times 0.54 / 0.01 = 96$$

The same was applicable for the schools to be selected. Thus the sample size was estimated for both the health facilities and the schools to be 192.

g) Sampling technique:

The following were the steps followed to draw a representative sample for the health facilities/schools:

- 1) Obtain the number of health facilities and schools in each locality (L1, L2....).
- 2) Obtain the total number of the health facilities and schools in all localities (L).
- 3) Then using the **proportional to size technique**: obtain the number of the health facilities and schools to be included in the sample from each locality (s). This could be done as follows:

$$S = \frac{\text{Number of the health facilities/schools in each locality (L1)}}{\text{Total number of the health facilities/schools in each locality (L)}} \times \text{Sample size}$$

- 4) The list of the categories of the health facilities/schools in each locality was obtained to draw **stratified sampling**. This would grantee further representation of the sample at the locality level. As the sample was selected from the various strata of the health facilities and schools. For example the health facilities in North Kordofan was stratified as follows:

- Hospital: 2.5%
- Health center: 6.7%.
- Dispensary: 14.8

- Dressing station: 14.8
- PHC units: 59.8%

Thus the sample was selected based on such stratification. Nevertheless the stratification of the health facilities at the state level might not be the same at the locality level. Thus it was necessary to obtain the strata of the health facilities and schools at the locality level. Then the sample size at the locality level (s) was distributed according to the size of each stratum.

This could be calculated as follows:

$$\text{Number of health facilities from each stratum} = \frac{\text{Number of health facilities in the stratum}}{\text{Total number of health facilities}} \times s$$

Then the health facilities to be selected from each stratum were carried systematically through obtaining the sample interval. The sample interval was obtained by dividing the number of health facilities from each stratum by the number of health facilities in the stratum. Then the first facility was selected blindly and then the next facility was selected by adding the sample interval and then onward till obtaining all the sampled facilities in the stratum.

For component (1): Locality financing of health and education

services: Total coverage of all the concerned personnel at the state and the locality level was carried through obtaining a complete list.

For component (3): The views of the clients:

In each locality (2) focus group discussions were held. Thus a total number of 10 focus group discussions were held in the five localities. In each locality a focus group discussion was held for each category of the service users:

- The health service users.
- The parents of the school children.
- The schoolchildren.
- The community leaders

Provided that the number of the participants in each focus group discussion was 10, then the total number of the participants in the focus group discussion was **200.**

h) Ethical considerations and clearance:

For all the respondents, the following quotation was read before starting the interview or the group discussion:

▪ **TO BE READ TO ALL RESPONDANTS:**

" I represent FMOH-Sudan. We are interviewing concerned health and school personnel in North Kordofan State for a research study We hope we can ask you some questions today. All answers will be seen only by the research team and will be kept confidential. Please be as accurate and truthful as possible, since your answers will help us to identify the current situation. If you have any questions about what is asked, please ask me to explain. Thank you in advance for your cooperation".

i) The data analysis plan:

The quantitative collected data was analyzed using the SPSS statistical package while the qualitative data analyzed manually using master sheets.

HEALTH FACILITIES SURVEY RESULTS

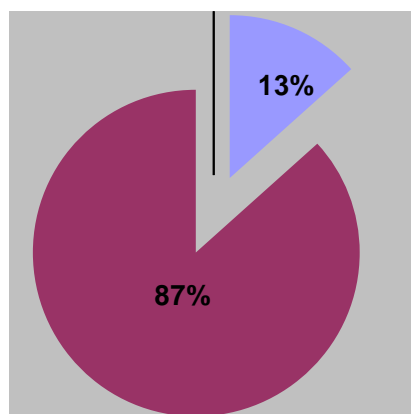
1. Basic characteristics of the facility:

Table (1): Distribution of the sampled health facilities by locality:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	20	20.4
<i>Bara</i>	21	21.4
	11	11.2
<i>Sodary</i>		
<i>Gabrat El Sheikh</i>	6	6.1
<i>Um Rwaba</i>	40	40.8
<i>Total</i>	98	100

About 40% of the sampled health facilities were located in Um Rwaba locality. The sample was based on the strata of the health facilities and the PHC units' stratum represented about 59% of the total health facilities. This finding indicates that Um Rwaba locality includes the bulk of the PHC units in North Kordofan State. .

Figure (1): Location of the health facility:



87% of the sampled health facilities were rural and 13% were urban.

Table (2): Type of the sampled health facilities:

<i>Type of the health facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	10	10.2
<i>Health center</i>	11	21.4
<i>Dressing station</i>	12	12.2
<i>Dispensary</i>	19	19.4
<i>PHC unit</i>	46	46.9
<i>Total</i>	98	100

Table (3): The body established the health facility:

<i>The body established the health facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Government</i>	29	29.6
<i>NGOs</i>	5	5.1
<i>Private</i>	2	2
<i>Community</i>	58	59.2
<i>Government & the community</i>	1	1
<i>Community & NGOs</i>	3	3.1
<i>Total</i>	98	100

The community established about 59.2% of the health facilities in North Kordofan while the government established about 29.6%. This is indicative of the deeply routed community participation in establishing the health facilities. In addition the community participated with the government (1%) and with the NGOs (3%) in establishing health facilities.

Table (4): Percentage of the body established the health facility by location:

<i>The established body</i>	<i>Location of the health facility</i>		<i>Total</i>
	<i>Rural</i>	<i>Urban</i>	
<i>Government</i>	75.9	24.1	100
<i>Community</i>	93.1	6.9	100

75.9% of the sampled health facilities established by the government were rural while 93.1% of the health facilities established by the community were rural. The rural

communities established higher number of health facilities in comparison to the health facilities established by the government. The situation is reversed for the urban health facilities where the government established 24.1% of the health facilities and the community established only 6.9% of the health facilities. The result tends to show that urban communities were less participating in establishing health facilities.

Table (5): Percentage of the body established the facility by the type of the facility:

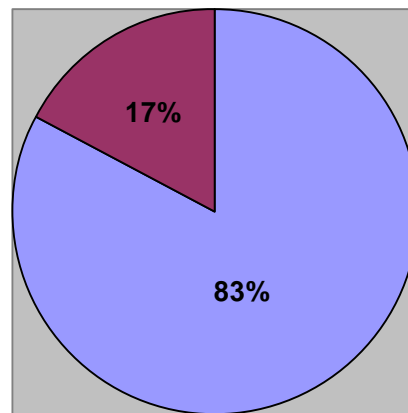
<i>The body established the facility</i>	<i>Type of the health facility</i>					<i>Total</i>
	<i>Hospital</i>	<i>Health center</i>	<i>Dressing station</i>	<i>Dispensary</i>	<i>PHC units</i>	
<i>Government</i>	27.6	17.2	20.7	24.1	10.3	100
<i>Community</i>	1.7	6.9	8.6	15.5	67.2	100

27.6% of the health facilities established by the government were hospitals, 24.1% were dispensaries and 10.1% were PHC units. 67.2% of the health facilities established by the communities were PHC units and only 1.7% was hospitals. The communities could afford for building PHC units rather than hospitals. This could be explained by the domination of the community participation as a strategic approach of the PHC during the 80s in North Kordofan State.

Table (6): The availability of source of water for the health facility:

<i>The available source of water</i>	<i>Number</i>	<i>Percentage</i>
<i>General network</i>	12	12.2
<i>Village well</i>	41	41.8
<i>Hand pump</i>	8	8.2
<i>Water reservoirs (Hafeers)</i>	12	12.2
<i>Artesian well</i>	22	22.4
<i>Non</i>	3	1.2
<i>Total</i>	98	100

The available source of water for about 41.8% of the health facilities was the village well, for 22.4% of the health facilities; the source was artesian well while about 1% of the facilities had no source of water.

Figure (11): The availability of the source of water on the day of visit:

In 83% of the health facilities, the source of water was available on the day of the visit while the source of water was not available in 17%. Despite the fact that only about 1% of the health facilities had no source of water but about 17% were suffering from the instability of the available source of water.

Table (7): The availability of source of electricity for the health facility:

<i>The available source of electricity</i>	<i>Number</i>	<i>Percentage</i>
<i>General network</i>	12	12.2
<i>Facility generator</i>	9	9.2
<i>Village generator</i>	5	5.1
<i>Solar cell</i>	20	20.4
<i>Non</i>	52	53.1
<i>Total</i>	98	100

53.1% of the health facilities had no source of electricity, 20.4% of the health facilities had solar cells and 12.2% had electricity from the general network.

Table (8): The working status of the electricity on day of the visit:

<i>Working status</i>	<i>Number</i>	<i>Percentage</i>
<i>Working</i>	43	93.5
<i>Not working</i>	3	6.5
<i>Total</i>	46	100

93.5% of the health facilities with source of electricity had the source working on the day of the visit.

Table (9): The actual daily hours of the facility operation:

<i>Operation hours</i>	<i>Number</i>	<i>Percentage</i>
<i>Less than 8 hours</i>	15	15.3
<i>8-10 hours</i>	28	28.6
<i>24 hours</i>	55	56.1
<i>Total</i>	98	100

56.1% of the sampled facilities were actually operating for 24 hours while 15.3% were operating for less than 8 hours daily. The findings reflect the marked variations in the operation hours. Such variations might be due to the type and location of the health facility. The operation hours for the hospitals were different from the other health facilities. In addition the operation hours for the rural hospitals were different from the urban hospitals.

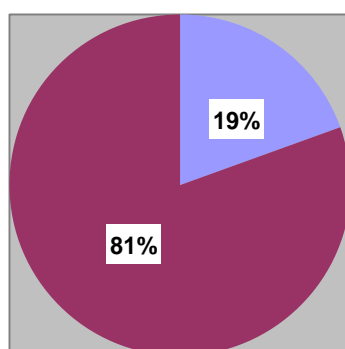
Table (10): Percentage of daily hours of facility operation by type of the facility:

<i>Type of the facility</i>	<i>Operation hours</i>			<i>Total</i>
	<i>Less than 8 hours</i>	<i>8-10 hours</i>	<i>24 hours</i>	
<i>Hospitals</i>	0	10	90	100
<i>Health centers</i>	0	72.7	27.3	100
<i>Dressing stations</i>	16.7	16.7	66.7	100
<i>Dispensaries</i>	10.5	31.6	57.9	100
<i>PHC units</i>	23.9	23.9	52.2	100

90% of the hospitals, 66.7% of the dressing stations, 57.9% of the dispensaries and 52.2 of the PHC units were operating for 24 hours. Hospitals are expected to operate for 24 hours in order to provide emergency services and specialized services for

patients referred from lower levels of the health care delivery system. More than 50% of the other health facilities (dressing stations, PHC units and dispensaries) were operating for 24 hours. This could be explained on the basis that the health care providers in these health facilities were available in the village and could be called for service after the official operation hours. Only 27.3% of the health centers were operating for 24 hours. About 20% of the dressing stations, dispensaries and PHC units were operating for less than 8 hours. None of the hospitals or health centers was operating for less than 8 hours. 72.7% of the health centers were operating for 8-10 hours.

Figure (111): The opening days per week



81% of the health facilities were opening for 7 days per week while 19% of them were opening for 6 days per week.

Table (11): Percentage of the opening days per week by type of the health facility:

<i>Type of the health facility</i>	<i>Working days per week</i>		<i>Total</i>
	6 days	7 days	
<i>Hospital</i>	10	90	100
<i>Health center</i>	63.6	36.4	100
<i>Dressing station</i>	8.3	91.7	100
<i>Dispensary</i>	21.1	78.9	100
<i>PHC unit</i>	13	87	100

63.6 of the sampled health centers were opening for 6 days per week. 90% of the hospitals were working for 7 days per week. It is clear that the hospitals organize shifts

and duties to cover the whole week. The high percentages for the dispensaries, dressing stations and the PHC units might indicate the availability of the health care providers for the whole week rather than opening for whole week.

Table (12): The estimated size of the population served by the facility:

<i>The estimated population</i>	<i>Number</i>	<i>Percentage</i>
<i>Less than 1000</i>	10	10.2
<i>1000-4999</i>	44	44.9
<i>5000-9999</i>	18	18.4
<i>10000-14999</i>	11	11.2
<i>More than 15000</i>	15	15.3
<i>Total</i>	98	100

The estimated size of the served population in 44% of the health facilities ranged between 1000 to 4999 and more than 15000 in 15% of them.

Table (13): The percentage of estimated size of the population served by type of the facility

<i>Type of the health facility</i>	<i>Estimated population</i>					<i>Total</i>
	<i>Less than 1000</i>	<i>1000-4999</i>	<i>5000-9999</i>	<i>10000-14999</i>	<i>More than 15000</i>	
Hospital	-	-	-	-	10	10
					100%	100%
Health center	1	2	1	7	-	11
	9.1%	18.2	9.1%	63.6%		100%
Dressing station	1	8	3	-	-	12
	8.3	66.7%	25%			100%
Dispensary	-	9	4	3	3	19
		47.4%	21.1%	15.8%	15.8%	100%
PHC unit	8	25	10	1	2	46
	17.4	54.3%	21.7%	2.2%	4.3%	100%
Total	10	44	18	11	15	98
	10.2%	44.9%	18.4%	11.2%	15.3%	100%

All the sampled hospitals served estimated population more than 15000 while 63.6% of the sampled health centers served estimated population ranged between 10000-14999. 66.7% of the sampled dressing stations served estimated population ranged between 1000-4999 while 47.4% of the sampled dispensaries served estimated population ranged between 1000-4999. 54.3% of the sampled PHC units served estimated population ranged between 1000-4999.

2. Staff information:

Table (14): distribution of the health cadres per locality

<i>Health cadre</i>	<i>Shaikan</i>	<i>Bara</i>	<i>Um Rwaba</i>	<i>Sodary</i>	<i>Gabrat Elsheikh</i>	<i>Total</i>
<i>Doctors</i>	35	4	19	3	3	64
<i>Nurses</i>	12	5	9	18	16	60
<i>Medical assistants</i>	49	9	8	3	3	72
<i>Laboratory assistants</i>	21	6	8	2	1	38
<i>Laboratory technicians</i>	17	00	5	00	2	24
<i>Health visitors</i>	9	00	5	3	00	17
<i>Assistant health visitor</i>	2	00	9	1	1	13
<i>Pharmacists</i>	10	00	1	00	00	11
<i>Assistant pharmacists</i>	8	2	6	1	1	18
<i>Nutritionists</i>	4	2	3	00	1	10
<i>Statisticians</i>	15	1	3	1	1	21
<i>Vaccinators</i>	15	3	8	3	2	31
<i>Nurse midwife</i>	9	2	12	1	3	27
<i>Village midwife</i>	19	7	14	2	2	44
<i>Community health workers</i>	11	10	24	7	2	54
<i>Nutritional guide</i>	4	00	2	00	00	6
<i>Total</i>	240	51	136	45	38	510

Referring to table (9): about **47%** of the health care providers were employed in Shaikan locality which is main locality in North Kordofan State containing the State Capital (El Obaed). **54%** of the doctors were employed in the sampled health facilities in Shaikan locality. **68%** of the medical assistants were employed in the sampled health facilities in Shaikan locality. **70%** of the laboratory technicians were employed in the sampled health facilities in Shaikan locality. **20%** of the nurses were employed in the sampled health facilities in Shaikan locality. This could be justified

that nurses were employed in other health facilities such as the dressing stations, which were mainly distributed in other localities.

The ratio of the health care providers per facility in Shaikan locality was **12** providers per facility. The same ratios for the other four localities were as follows: Bara locality: **2**, Um Rwaba locality: **3**, Sodary locality: **4**, Gabrat Elsheikh **6**. This indicates that significant variations do exist in the distribution of the health cadres between the main locality and the other localities. Some localities are lacking important health cadres: In Bara locality: **No** laboratory technician, health visitor, assistant health visitor, pharmacist and nutritional guide were ever employed in the sampled health facilities.

Table (15): Reasons for absence of the staff:

<i>Reason</i>	<i>Number</i>	<i>Percentage</i>
<i>Sick leave</i>	4	12.1
<i>Outreach activity</i>	6	18.2
<i>Travel to the State Ministry of Health</i>	3	9.1
<i>Training</i>	2	6.1
<i>Off duty</i>	6	18.2
<i>Annual leave</i>	1	3
<i>Others</i>	11	33.3
<i>Total</i>	33	100

The absenteeism rate among the staff of the sampled health facilities was **6.5%**. 18.2% of the staff were absent from the health facility as they were performing outreach activities. 12.1% of the staff were absent for sick leave and 18.2% were absent as they were off duty at the time of the visit. 33.3% were absent for other reasons including unidentified reasons.

Table (16): Distribution of the health facilities by the date of receiving of the last month salary:

<i>The date</i>	<i>Number</i>	<i>Percentage</i>
<i>Before the end of the month</i>	4	4.1
<i>Not yet received</i>	92	93.9
<i>Within one week after the end of the month</i>	2	2
<i>Total</i>	98	100

In 93.9% of the health facilities the staff have not yet received their last month salaries despite that they were interviewed during the second week of the next month. This indicates that the problem of delayed receiving of salaries of the staff is widely predominating across the sampled health facilities.

Table (17): Percentage of the date of receiving the last month salaries by location of the health facility

<i>Date of receiving the last month salaries</i>	<i>Location of the health facility</i>		<i>Total</i>
	Rural	Urban	
<i>Before the end of the month</i>	50	50	100
<i>Not yet received</i>	88	12	100

88% of the health facilities, which the staff not yet received their salaries were rural, and 12 % were urban. This indicates that the problem of delayed receiving salaries is more marked in the rural health facilities in comparison to the urban health facilities.

Table (18): Percentage of the date of receiving the last month salaries by type of the health facility

<i>Type of the health facility</i>	<i>Date of receiving the last month salaries</i>		<i>Total</i>
	Before the end of the month	Not yet received	
<i>Hospitals</i>	10	90	100
<i>Health centers</i>	9.1	90.9	100
<i>Dressing stations</i>	0	100	100
<i>Dispensaries</i>	5.3	94.7	100
<i>PHC units</i>	6.1	93.9	100

The staff in 90% of the sampled hospitals and the health centers have not yet received their salaries at the date of the visit (second week of the month) while the staff in all the dressing stations have not received their salaries. In 5.3% of the sampled dispensaries and 6.1% of the sampled PHC units, the staff received their salaries before the end of the month.

Table (19): Distribution of the health facilities by the place of receiving salaries:

<i>Place</i>	<i>Number</i>	<i>Percentage</i>
<i>At the facility</i>	7	7.1
<i>At the locality</i>	82	83.7
<i>At the State Ministry of Health</i>	9	9.2
<i>Total</i>	98	100

In 83.7% of the health facilities, the staff used to receive their salaries at the locality. In about 9.2% of the health facilities, the staff used to receive their salaries at the State Ministry of Health. With the introduction of federalism and decentralization in 1995, the states and the localities adopted full responsibility for financing and management of the health facilities.

Table (20): Distribution of the health facilities according to the number of staff received in-service training:

<i>Trained staff</i>	<i>Number</i>	<i>Percentage</i>
<i>None</i>	63	64.3
<i>1-5</i>	33	33.7
<i>More than 5</i>	2	2
<i>Total</i>	98	100

In 64.3% of the health facilities; none of the staff had received in-service training in the last two years. In about 33.7% of the health facilities: 1-5 staff received in-service training in the last two years. This indicates that the staff in the sampled health facilities had limited opportunities for in-service training and this might affect their capabilities for provision of quality health services.

Table (21): Distribution of the health facilities by the date of the last supervisory visit:

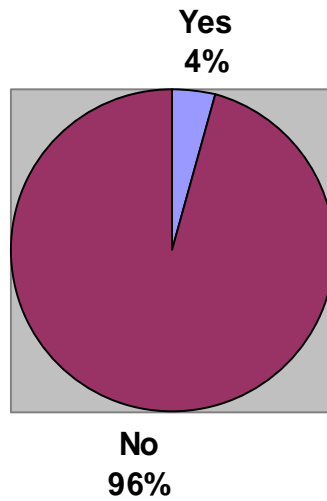
<i>Date of the last supervisory visit</i>	<i>Number</i>	<i>Percentage</i>
<i>Within the last month</i>	18	18.4
<i>Within the last three months</i>	22	22.4
<i>Within the last six months</i>	8	8.2
<i>More the last six months</i>	31	31.6
<i>Never visited</i>	19	19.4
<i>Total</i>	98	100

The date of the last supervisory visit for about 31.6% was reported more than the last six months before the date of the interview. 19.4% of the health facilities were never visited and 22.4% were visited within the last three months. Conclusively about 50% of the sampled health facilities were either visited more than six month before the date of the interview or never visited by the supervisory team. The supervisory system is inadequately functioning to cover frequently the health facilities at different levels of the health care delivery system.

On average the number of the members of the supervisory team visited the health facility for the last visit was 2. The arithmetic mean of the hours spent by the supervisory team in the health facility during the last supervisory visit was 3.3 hours.

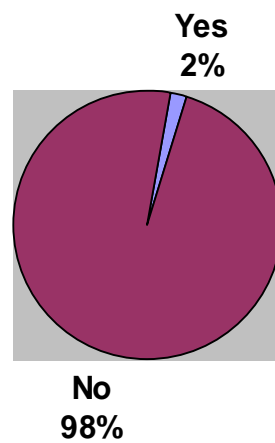
3. Financing of the health facility:

Figure (1V): Budget from the state

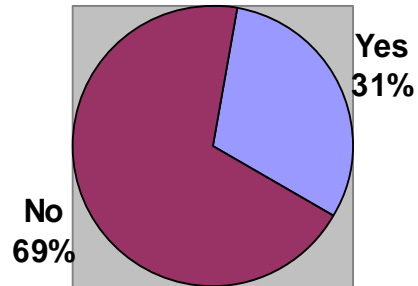


For 96% of the health facilities, the budget from the state was not assigned as a financial source available for their budgets.

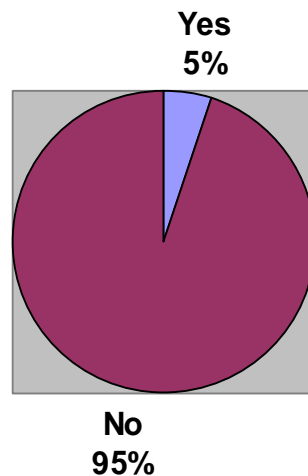
Figure (V): Budget from the locality



For 98% of the health facilities, the budget from the locality was not assigned as a financial source available for their budgets.

Figure (V1): Users' fees

For 31% of the health facilities, the users' fees were assigned as a financial source for their budgets.

Figure (V11): Contribution by the community

For 95% of the health facilities, the contribution by the community was not assigned as a financial source for their budgets.

Table (22): Total budget in Sudanese Dinnars of the health facilities last year:

<i>Budget source</i>	<i>Sum in Sudanese Dinnars</i>	<i>Percentage</i>
<i>State</i>	412280000.0	52.8
<i>Locality</i>	3600000.0	0.5
<i>User's fees</i>	293306025.0	37.5
<i>Contribution by the community</i>	275000.0	0.04
<i>Others</i>	71818800	9.16
<i>Total</i>	781279825	100

52.8% of the total budget of the health facilities last year was allocated by the State Ministry of Health, 37.6% from the users' fees, and 0.5% by the locality. The budget source from the State last year was available for the health facilities in two localities, namely Shaikan and Um Rwaba. The budget source from the state was not available for the health facilities in the other three localities. The budget from the state was centralized for the health facilities in two localities rendering the health facilities in the other three localities without any state budgetary allocations. The budget source from the locality was available only for the health facilities in Um Rwaba locality. The health facilities in the other four localities namely: Shaikan, Bara, Sodary and Gabrat Elsheikh had no budgetary allocations from the localities. Users' fee was the only available source of budget for all health facilities in all localities.

Table (23): The distribution of the health facilities budgets from the State Ministry of Health by locality:

<i>Locality</i>	<i>Budget in Sudanese Dinnars</i>	<i>Percentage</i>
<i>Shaikan</i>	408000000.0	99
<i>Um Rwaba</i>	4280000.0	1
<i>Total</i>	412280000.0	100

99% of the budget from the state was allocated for the 20 health facilities in Shaikan Locality (the main locality) and only 1% of the budget was allocated for the 40 health facilities in Um Rwaba locality. Almost all the budgetary allocations from the State Ministry of Health were absorbed by the health facilities in Shaikan locality.

Table (24): Users' fees by locality:

<i>Locality</i>	<i>Sum</i>	<i>Percentage</i>
<i>Shaikan</i>	203955625.0	69.5
<i>Bara</i>	42723600.0	14.6
<i>Sodary</i>	5002000.0	1.7
<i>Gabrat Elsheikh</i>	37440000.0	12.7
<i>Um Rwaba</i>	4184800.0	1.5
<i>Total</i>	293306025.0	100

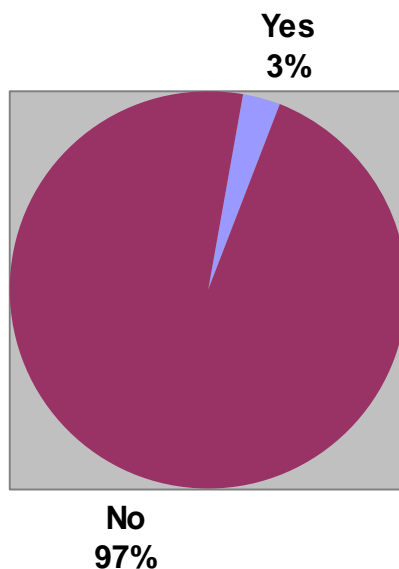
69.5% of the budget generated from the users' fees was available for the health facilities in Shaikan locality, 14.6% for the health facilities in Bara locality, 12.7% for the health facilities in Gabrat Elsheikh locality and about 3% for the other two localities.

Table (25): Contribution by the community by locality:

<i>Locality</i>	<i>Sum</i>	<i>Percentage</i>
<i>Shaikan</i>	25000.0	9.1
<i>Bara</i>	50000.0	18.2
<i>Sodary</i>	80000.0	29.1
<i>Gabrat Elsheikh</i>	-	-
<i>Um Rwaba</i>	120000	43.6
<i>Total</i>	275000	100

43.6% of the contributions by the community accounted for the budgets of the health facilities in Um Rwaba locality, 29.1% for the health facilities in Sodary locality, 9.1% for the health facilities in Shaikan locality and non for the health facilities in Gabrat Elsheikh. Despite the fact that the contributions by the community were minimal but still they were paid by the communities in the poor and underserved localities rather than the rich ones.

Figure (V111): The distribution of the health facilities received budget from the locality last year



Only 3% of the health facilities received the allocated budget from the state/locality. As shown in table (22): 52.8% of the total budget of the health facilities last year was allocated by the State Ministry of Health. The budget source from the State last year was available for the health facilities in two localities, namely Shaikan (20 health facilities) and Um Rwaba (40 health facilities). But in fact that the budget source from the state was received by only 3% of the health facilities in the two localities. This is indicative that the state budget allocations were absorbed mainly by a small portion of the health facilities (three health facilities) mostly hospitals in the State capital. The first budget release was received either at the beginning of the year or within the first three months. One health facility received between 10-49% of the allocated budget and two facilities received more than 90% of the allocated budget.

Table (26): the distribution of the health facilities that received supplies/goods from the Federal Ministry of Health last year:

<i>Received supplies/ goods from the federal level</i>	<i>Number</i>	<i>Percentage</i>
<i>Yes</i>	7	7.1
<i>No</i>	91	92.9
<i>Total</i>	98	100

Only 7.1% of the health facilities received supplies/ goods from the Federal Ministry of Health last year. None of the health facilities received transferred budget from the federal level last year.

Table (27): Percentage of the health facilities that received supplies/goods by type of the facility:

<i>Type of the health facility</i>	<i>Received supplies/goods from the Federal Ministry of Health</i>		<i>Total</i>
	<i>Yes</i>	<i>No</i>	
<i>Hospital</i>	30	70	100
<i>Dispensary</i>	10.5	89.5	100
<i>PHC unit</i>	4.3	95.9	100

30% of the health facilities that received supplies/goods from the federal level were hospitals, 10.5 were dispensaries and 4.3% were PHC units. None of the health facilities that received supplies/goods from the federal level were health centers or dressing stations. The supplies/goods from the federal level were procured to the hospitals. The supplies/goods were mostly procured from the vertical programs at the federal level to support the state health facilities.

Table (28): The categories of the supplies/goods received from the Federal Ministry of Health:

<i>Locality</i>	<i>Categories of supplies/goods</i>
<i>Shaikan</i>	Boilers-surgical instruments Medical supplies
<i>Bara</i>	Laboratory equipment Surgical instruments
<i>Gabrat</i>	Couch-delivery set-
<i>Elsheikh</i>	Sphygmomanometers, stethoscopes
<i>Um Rwaba</i>	X-ray machine-Delivery sets- Sterilization drums-instruments for the ophthalmology unit-Furniture for the offices- Family planning methods-oral rehydration salts- folic acid tablets-iron tablets- chloroquine tablets and syrups

The supplies/goods from the federal level were mainly equipment and instruments for the tertiary facilities in Bara and Um Rwaba and Shaikan localities. This is evidenced from the categories of the received supplies/ goods. The health facilities in Gabrat Elsheikh received simple equipments while the health facilities in Sodary locality received no supplies/goods.

Table (29): The distribution of the health facilities according to the personnel responsible for approval of financial requisition

<i>The personnel responsible for approval</i>	<i>Number</i>	<i>Percentage</i>
<i>The health care provider in charge of the facility</i>	82	83.7
<i>A facility employee</i>	9	9.2
<i>Others</i>	7	7.1
<i>Total</i>	98	100

In 83.7% of the health facilities, the health care provider in charge of the health facility was responsible for approval of the financial requisition within the facility. A facility employee was responsible for the approval in 9.2% of the health facilities. In 7.1% of the health facilities, the responsibility for approval of the financial requisition

was allotted to committees such as health committees, popular committees and administrative committees.

4. User's fees and social support:

Table (30): The process of determining the cost of each service component provided:

<i>The process</i>	<i>Number</i>	<i>Percentage</i>
<i>According to a standard list prepared by the state ministry</i>	14	14.3
<i>The cost is decided by the facility</i>	13	13.3
<i>The cost is decided by the health care providers</i>	56	57.1
<i>Others</i>	15	15.3
<i>Total</i>	98	100

In all health facilities, the patients have to pay for any service provided for them. The process of determining the cost of the provided services was varying. In 57.1% of the sampled health facilities, the health care providers decided the cost of the provided service. This might be explained by the fact that most of the sampled facilities were single-provider ones (Dressing stations, PHC units). Thus the provider in such facilities should have to manage the case and as well to estimate and collect the cost of the provided care. In 14.3% of the health facilities, the cost of the provided service was decided according to a standard list prepared by the State Ministry of Health. In 13% of the health facilities, the cost of the provided service was decided by the facility (administrative staff and the health care providers).

Table (31): Exempted services in the sampled health facilities

<i>Service component</i>		<i>Yes</i>	<i>No</i>	<i>Total</i>
<i>Immunization</i>	Count	76	18	94
	%	80.9	19.1	100
<i>Family planning</i>	Count	19	4	23
	%	82.6	17.4	100
<i>ANC</i>	Count	32	40	72
	%	44.4	55.6	100
<i>Delivery</i>	Count	4	17	21
	%	19	81	100

In 80.9% of the sampled health facilities that provide immunization services, the services were exempted from fees. In 82.9% of the health facilities that provide

family planning services, the family planning services were exempted from fees. In 44.4% of the health facilities that provide ANC services, the services were exempted from the fees. The delivery services were exempted from fees in 19% of the facilities that provide delivery services. There were variations in exemption of services from one facility to another. The variation was marked in the ANC services as 55.6% of the health facilities that provide ANC charged fees from the attendants. It is expected that such variation should not have existed provided that the State Ministry of Health issued the standard list for service components to be exempted from fees and the health facilities utilize it strictly.

Table (32): The process of determining the exempted services at the facility level:

<i>The process</i>	<i>Number</i>	<i>Percentage</i>
<i>According to the opinion of the health care provider</i>	53	54.1
<i>According to the standard list prepared by the state authority</i>	36	36.7
<i>Others</i>	9	9.2
<i>Total</i>	98	100

In 54.1% of the health facilities, the exempted services were being determined according to the opinion of the health care provider in charge. In such facilities, it was the provider's judgment, which determined whether the provided services would have been exempted, or not. In 36.7% of the health facilities, the exempted services were being determined according to the standard list prepared by the state authority or the head office in case of non-governmental organizations. In such facilities, the providers utilized strictly the standard list of the exempted services developed by the state authority. In about 9% of the health facilities including private ones, the process of determining the exempted services at the facility level; was either not existing or unclear.

Table (33): The situation for those patients who failed to pay:

<i>The situation</i>	<i>Number</i>	<i>Percentage</i>
<i>No services will be provided</i>	3	3.1
<i>No services will be provided and they will be referred to the social supporting services i.e. Zakat.</i>	3	3.1
<i>Services will be provided pending that the relatives and community members will contribute.</i>	8	8.1
<i>Services will be provided and they will be referred to the social supporting system.</i>	3	3.1
<i>On credit</i>	47	47.9
<i>Exempted</i>	17	17.3
<i>On credit or exempted</i>	14	14.3
<i>Others</i>	3	3.1
<i>Total</i>	98	100

In 47.9% of the health facilities, the situation for patients/clients who failed to pay, the services would be provided on credit to be paid later on. In 17.3% of the health facilities, the patients/clients who failed to pay would be exempted. In 14.3% of the health facilities, the patients/clients who failed to pay would be either on credit or exempted. In 8.1% of the health facilities, services would be provided pending that the relatives and community members would contribute. This indicates that the common practices as regards the fees for services in the health facilities were flexible in dealing with patients who failed to pay the cost of services. In only 3.1% of the health facilities, no services would be provided if the patient failed to pay. The social supporting system remains as a limited option for supporting patients who failed to pay the cost of services. This is evidenced from the finding that in about 6% of the health facilities, the patients who failed to pay were either provided with the services or not and then referred to the social supporting system.

Table (34): Distribution of patients/clients failed to pay service fees last month per locality health facilities

<i>Locality health facilities</i>	<i>Patients/clients attended the facilities last month</i>		<i>Patients/clients failed to pay the service fees last month</i>		<i>Those patients/clients get supported by the social supporting system</i>	
	Number	Percentage	Number	Percentage	Number	Percentage
<i>Shaikan</i>	16423	44.8	699	4.1	161	23
<i>Bara</i>	4405	12	686	15.6	70	10.2
<i>Sodary</i>	3338	9.1	267	8	100	37.5
<i>Gabrat</i>	1197	3.3	342	28.6	30	8.8
<i>Elsheikh</i>						
<i>Um</i>	11335	30.8	3860	34.1	185	4.8
<i>Rwaba</i>						
<i>Total</i>	36698	100	5454	14.9	546	10

Considering the health facilities in Shaikan locality: the total number of patients/clients attended last month was 16423 which is about 44.8% of the total number of the attendants of the health facilities in all localities. Only 4.1% of those attended Shaikan health facilities last month failed to pay the service fees. The social supporting system supported 23% of those patients/clients who failed to pay the service fees. This might be justified by the high affordability of the attendants in Shaikan locality, which is the main locality with better economical conditions. Nevertheless the role of the social supporting system was limited.

Considering the health facilities in Um Rwaba locality: the total number of the patients/clients attended last month was 11335, which was about 30.8% of the attendants in all localities. 34.1% of those attended Um Rwaba health facilities last month failed to pay the service fees. This is indicative of the low affordability of the attendants and their poor socioeconomic status. Despite this high failure the social supporting system supported only about 4.8% of those who failed to pay the service fees. The situation was similar for the health facilities in Gabrat Elsheikh with 28.6%

of the attended patients/clients who failed to pay the services fees. Only 8.8% of those who failed to pay the service fees were supported by the social supporting system.

The health facilities in Sodary locality showed 8% rate with 37.5% get supported by the social supporting system. The health facilities in Bara locality showed 15.6% with 10.2% get supported by the social supporting system.

On average about 14.9% of the patients/clients attended failed to pay the service fees in all the health facilities with 10% of them get supported by the social supporting system.

Table (35): The management of the users' collected fees at the facility level:

<i>Type of the health facility</i>	<i>The management of the collected fees at the facility level</i>				<i>Total</i>
	All the collected fees are to be delivered to the state	All the collected fees are to be delivered to the locality	A specific portion of the collected fees is being retained	All the collected fees are being retained and managed by the facility	
<i>Hospital</i>	1	0	0	9	10
<i>Health center</i>	1	0	1	9	11
<i>Dressing station</i>	0	1	0	11	12
<i>Dispensary</i>	0	0	3	16	19
<i>PHC unit</i>	1	2	2	41	46
<i>Total</i>	3	3	6	86	98

In 86 (87.8%) of the health facilities, the collected users' fees were retained and managed by the facility. In 6 health facilities (6.1%), a specific portion of the collected fees was being retained and managed by the facility. The advantage of such practice is that the health facility has the full financial autonomy to manage the collected fees. The disadvantage of such practice is the difficulty for auditing and reviewing especially in the far rural health facilities. In three health facilities (2 PHC units and 1 dressing station); all the collected fees were delivered to the locality. In

three health facilities (one hospital, one health center and one PHC unit); all the collected fees were delivered to the state.

Table (36): The mean cost to be paid by the patients by type of health facility:

<i>Health facility</i>		<i>Total cost in SD to be paid for an episode of simple malaria</i>	<i>Total cost to be paid for ANC visit</i>	<i>Total cost to be paid for normal delivery at the hospital</i>	<i>Total cost to be paid for drainage of an abscess</i>	<i>Total cost to be paid for an appendicectomy</i>
Hospital	Sum	8700	3600	43100	19340	73300
	Mean	870	450	4788.9	2148.9	14660
Health center	Sum	7650	2670	-	4350	-
	Mean	695.5	333.8	-	870	-
Dressing station	Sum	8600	800	-	4400	-
	Mean	781.8	266.7	-	1100	-
Dispensary	Sum	11450	2950	-	9700	-
	Mean	602.6	226.9	-	808.3	-
PHC unit	Sum	22775	5750	-	7150	-
	Mean	495.1	221.1	-	550	-
Total	Sum	59175	15770	43100	44940	73300
	Mean	610.1	271.9	4788.9	1045.1	14660

The total cost in Sudanese Dinnars to be paid for an episode of simple malaria ranged from 495.1 to 870 with a mean of 610.1. The highest mean of cost was for the hospital (870 Sudanese Dinnars) and the lowest mean of the cost was for the PHC units (495.1). The patients with an episode of simple malaria managed in hospitals paid a cost, which was 1.7 greater than the cost paid by patients with an episode of simple malaria managed in PHC units. The total cost in Sudanese Dinnars to be paid for an ANC visit ranged from 221.1 to 450 with a mean of 271.9. The ANC attendants in hospitals paid a cost for the visit, which was twice the cost, paid by the ANC attendants in PHC units. The variations might be attributed to the fact that the health

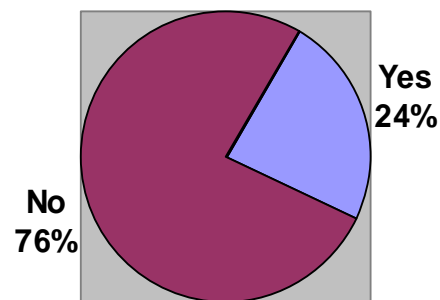
care providers used their own judgments to estimate the cost rather than to use a standard list for costing the provided services developed by the state authority. In addition the variations might result from lack of service standards, which were important for standardizing the management and the prescribed drugs.

The total cost in Sudanese Dinnars to be paid for drainage of an abscess ranged from 550 up to 2148.9 with a mean of 1045.1. The patients subjected to drainage of an abscess in hospitals paid a cost, which was 1.9 greater, the cost paid by patients subjected to abscess drainage in PHC units. Such variation could be justifiable on the nature, size and site of the abscess and whether it needs a general or local anesthesia. Thus the cost of draining an abscess in hand differed from the cost of draining a gluteal abscess. The former could be performed under local anesthesia while the latter had to be performed under general anesthesia. Such intrinsic variation in the nature of some medical and surgical conditions makes it difficult to standardize the cost of the needed services.

The mean cost in Sudanese Dinnars to be paid for normal delivery at hospital was 4788.9 while the mean cost in Sudanese Dinnars to be paid for an appendicectomy operation was 14660. It was noted that significant variations do exist from one hospital to another as regards the cost of the normal delivery and the appendicectomy.

5. Health services:

Figure 1X: Distribution of the health facilities according to provision of family planning services



Family planning services were provided in 24% of the sampled health facilities while in 76% of them family planning services were not provided.

Table (37): distribution of the health facilities that provide family planning services by the type:

<i>Type of the health facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	7	30.4
<i>Health center</i>	5	21.7
<i>Dressing station</i>	1	4.3
<i>Dispensary</i>	3	13
<i>PHC unit</i>	7	30.6
<i>Total</i>	23	100

30.4% of the health facilities that provide family planning services were hospitals and 30.6 were PHC units. The family planning services were equally available in tertiary and primary health care facilities. 22.7% of the health facilities that provide family planning services were health centers. The availability of the family planning services might be related to the availability of the qualified/trained cadres in the various health

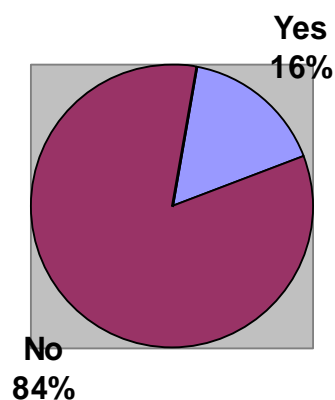
facilities. The availability of family planning services was limited in dispensaries (13%) and dressing stations (4.3%) and again this might be related to the fact that the health care providers in such health facilities were not trained on provision of family planning services.

Table (38): Distribution of the health facilities that provide family planning services by locality:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	7	30.4
<i>Bara</i>	5	21.7
<i>Sodary</i>	3	13.
<i>Gabrat Elsheikh</i>	2	8.7
<i>Um Rwaba</i>	6	26.2
<i>Total</i>	23	100

30.4% of the health facilities that provide family services were in Shaikan locality and 26.2% of the health facilities that provide family planning services were in Um Rwaba locality. As shown in table (14); 14 out of 17 of the health visitors (82.4%) were employed in the health facilities in Shaikan and Um Rwaba localities. In the health facilities in Um Rwaba locality, 9 assistant health visitors were employed and this increased the availability of family planning services. The training of assistant health visitors to provide safe motherhood services within the health facilities was experienced in areas suffering from shortage of the health visitors cadres. Such experience needs to be thoroughly explored to assess the performance of the assistant health visitors in comparison to the performance of the health visitors cadres and the other cadres if properly trained on family planning services. The situation in the health facilities in Gabrat Elsheikh locality was peculiar. Only two health facilities provided family planning services and as shown in table (14): no health visitors were ever employed and only one assistant health visitor was employed.

21.7% of the health facilities that provide family planning services were in Bara locality. Referring to table (14): None of the health facilities in Bara locality ever employed health visitors or assistant health visitors. This is another model for provision of family services by other cadres provided that they were subjected to appropriate training.

Figure X: Provision of family planning services on the date of visit:

The health facilities that provide family planning services on the date of the visit were 16%, which was lesser than percentage of the health facilities that used to provide family planning services (24%) as shown in figure (1X). This could be explained by the fact that in some health facilities, family planning services were not provided on daily basis but rather on scheduled days per week. The practice of provision of family planning services on scheduled days had resulted from shortage of qualified/trained cadres on provision of family planning services at the health facilities.

Table (39): Means of days per week for provision of family planning services:

<i>Locality</i>	<i>Mean –days for family planning services</i>
<i>Shaikan</i>	4
<i>Bara</i>	5.6
<i>Sodary</i>	3.7
<i>Gabrat Elsheikh</i>	4
<i>Um Rwaba</i>	2.6
<i>Total</i>	3.6

The mean of days per week for provision of family planning services in health facilities in Bara locality was 5.6 while in Um Rwaba was 2.6. In the health facilities in Bara locality used to provide family planning services almost on daily basis despite the fact that no health visitors or assistant health visitors were ever employed in these facilities. In such health facilities other cadres were trained on family planning services, which resulted in availability and provision of family planning services on daily basis. It has to be noted that one of the UNFPA-supported RH projects was implemented in Bara locality since 1994. One of the major activities of the project was to train the health care providers on provision of family planning services. In comparison to the health facilities in Um Rwaba locality, the mean of days for provision of family planning services was 3 days. It has to be noted that 5 health visitors and 9 assistant health visitors were employed in all the health facilities in Um Rwaba locality but still the practice of providing family planning services on scheduled days per week was maintained. The two models of provision of family planning services have to be assessed to provide evidence for cost/ effectiveness and performance. The mean of the mean for all the facilities in all localities was 3.6 days.

Table (40) The family planning services providers in health facilities:

<i>Family planning provider</i>	<i>Number</i>	<i>Percentage</i>
<i>Doctor</i>	4	17.4
<i>Health visitor</i>	7	30.4
<i>Medical assistant</i>	2	8.7
<i>Nurse</i>	1	4.3
<i>Assistant health visitor</i>	2	8.7
<i>Village midwife</i>	4	17.4
<i>Community health worker</i>	2	8.7
<i>Sister</i>	1	4.3
<i>Total</i>	23	100

The health visitors (30.4%), the doctors (17.4%) and the village midwives (17.4%) were the main family services providers in health facilities that provide family planning services. Other health cadres also provide family planning services to a lesser extent.

Table (41): The family planning methods that can be obtained from the health facility

family planning methods		No	Yes	Total
Combined contraceptive pills	Count	3	20	23
	%	13.0%	87.0%	100.0%
Mini-pills	Count	5	18	23
	%	21.7%	78.3%	100.0%
Injectable	Count	16	7	23
	%	69.6%	30.4%	100.0%
IUD	Count	20	3	23
	%	87.0%	13.0%	100.0%
Natural methods	Count	10	13	23
	%	43.5%	56.5%	100.0%
Male condoms	Count	13	10	23
	%	56.5%	43.5%	100.0%
Female condoms	Count	23		23
	%	100.0%		100.0%
Emergency contraceptive pills	Count	23		23
	%	100.0%		100.0%
tubal ligation	Count	19	4	23
	%	82.6%	17.4%	100.0%

The hormonal methods: the combined contraceptive and the mini-pills could be obtained by the family planning clients in 87% and 78% of the health facilities. The clients in only 30.4% of the health facilities could obtain the injectable contraceptives.

The emergency contraceptive pills were not available or more precisely were not prescribed in all health facilities that used to provide family planning services.

The mechanical methods: The intra-uterine devices could be obtained in 13% of the health facilities mainly hospitals. The male condoms could be obtained in 43.5% of the health facilities while the female condoms could not be obtained in any health facility.

The natural methods: the advice on natural methods of contraception could be obtained in only 56.5% which is unusual situation as the natural methods are commonly known and widely practiced by the Sudanese women across the country. The tubal ligation method was available in 14.4% of the health facilities mainly the hospitals.

Conclusively the coverage of family planning services is poor and the options for family planning methods remain limited for the clients.

Table (42): The status of the place where the family planning clients are examined:

<i>The place</i>	<i>Number</i>	<i>Percentage</i>
<i>Separate room with door and curtain</i>	9	39.1
<i>Curtained area</i>	2	8.7
<i>Same room with others</i>	12	52.2
<i>Total</i>	23	100

In 52.2% of the facilities, the family planning clients were interviewed and examined in the same room with other clients/patients. In 39.1% of the facilities, the clients were interviewed and examined in a separate room with door and curtains. In 8.7% of the health facilities, the family planning clients were interviewed and examined in a curtained area in the facility. The result indicates that the privacy element as a an essential component of quality family planning services was considered in less than 50% of the health facilities that used to provide family planning services.

Table (43): Family planning resources checked in the health facilities

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Examination couch</i>	Count	14	9	23
	%	60.9	39.1	100
<i>Cupboard for keeping family planning methods</i>	Count	11	12	23
	%	47.8	52.2	100
<i>Family planning cards</i>	Count	12	11	23
	%	52.2	47.8	100
<i>Family planning register</i>	Count	15	8	23
	%	65.2	34.8	100
<i>Family planning methods wall chart</i>	Count	8	15	23
	%	34.8	65.2	100
<i>Other family planning IEC materials</i>	Count	12	11	23
	%	52.2	47.8	100

An examination couch was seen in 60.9% of the health facilities that provide family planning services. A cupboard for keeping the family planning methods was seen in 47.8% of the health facilities that provide family planning services. Family planning cards and family planning register were seen in 52.2% and 65.2% of the health facilities. In health facilities lacking the family planning cards (47.8%), the clients might encounter difficulties in the follow up of visits to obtain the methods. In health facilities lacking the family planning register (34.8%), the provider would not be able to record the information about the clients and the utilization of the various methods. The family planning methods wall chart was seen in 34.8% of the health facilities that provide family planning services. In 65.2% of the facilities, the family planning wall chart was not seen. Other family planning IEC materials were seen in 52.2% of the health facilities that provide family planning services. In more than 50% of the health facilities, the family planning IEC materials were lacking and the clients were not exposed to IEC messages within the facility.

Table (44): The cleanliness of the examination couch:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Clean</i>	9	64.3
<i>Not clean</i>	5	35.7
<i>Total</i>	14	100

In 64.3% of the health facilities that provide family planning services, the examination couch was found to be clean while in 35.7% it was not clean.

Table (45): Covering of the examination couch with a sheet:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Covered</i>	3	21.4
<i>Not covered</i>	11	78.6
<i>Total</i>	14	100

In 21.4% of the health facilities that provide family planning services, the examination couch was covered with a sheet while in 78.6% it was not covered. Such simple inputs played an important role in motivating the clients to utilize or maintain utilization of the family planning services.

Table (46): The availability of safe motherhood services at level of health facility:

<i>Safe mother hood service</i>		<i>Yes</i>	<i>No</i>	<i>Total</i>
<i>ANC</i>	Count	72	26	98
	Percentage	73.5%	26.5%	100
<i>Delivery</i>	Count	21	77	98
	Percentage	21.4%	78.6%	100
<i>PNC</i>	Count	10	88	98
	Percentage	10.2%	89.8%	100
<i>Post-abortion care</i>	Count	11	87	98
	Percentage	11.2%	88.8%	100

The ANC services were available in 73.5% of the health facilities, the PNC services were available in 10.2% and the post-abortion care services were available in 11.2% of the sampled health facilities. This indicates that PNC and post-abortion care services were poorly addressed within the safe mother hood package of services provided by most of the sampled health facilities. In addition this might be related to tendency of the women to utilize community-based midwifery services for PNC and post-abortion care rather than the facility-based services. The delivery services were available in 21.4% of the health facilities mostly the hospitals.

Table (47): Distribution of health facilities that provide ANC services by type:

<i>Type of the facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	10	13.9
<i>Health center</i>	10	13.9
<i>Dressing station</i>	7	9.7
<i>Dispensary</i>	16	22.2
<i>PHC unit</i>	29	40.3
<i>Total</i>	72	100

40.3% of the health facilities that provide ANC services were PHC units. Despite the high percentage of PHC units that provide ANC services but the picture is different on considering the number of the PHC units included in the sample, which was 46; then the percentage of the PHC units that provide ANC services is 63%. The hospitals represent 13.9% of the health facilities that provide ANC services but actually all the

hospitals included in the sample provide ANC services for their attendants. The health centers represent 13.9% of the health facilities that provide ANC services but actually 91% of the health centers included in the sample provide ANC services for their clients. Conclusively, the ANC services were provided in a high percentage of the hospitals and the health centers while ANC provision was limited in the PHC units.

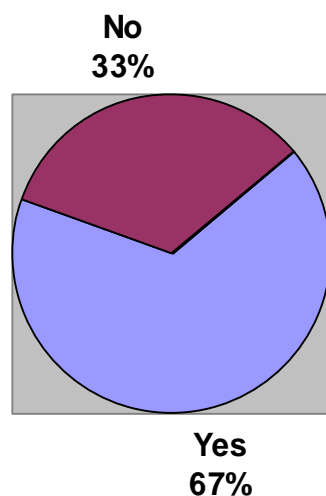
Table (48): Distribution of the health facilities that provide ANC services by locality:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	12	16.7
<i>Bara</i>	18	25
<i>Sodary</i>	8	11.1
<i>Gabrat Elsheikh</i>	5	6.9
<i>Um Rwaba</i>	29	40.3
<i>Total</i>	72	100

40.3% of the health facilities that provide ANC services were in Um Rwaba locality. This represents **72.5%** of the total health facilities included in the sample from um Rwaba locality (29 out of 40 health facilities). As shown in table (14) that about 5 health visitors and 9 assistant health visitors were employed in the health facilities in Um Rwaba and those cadres provide the package of safe motherhood services.

25% of the facilities that provide ANC services were in Bara locality, which represents about **85.7%** of the health facilities, included in the sample from Bara locality (18 out of 21 health facilities). Non of the health visitors or the assistant health visitors were employed in Bara locality but it seems that other health care providers especially at the PHC level were trained on the provision of safe motherhood services (UNFPA-supported project).

The comparison of the two the localities findings might indicate that involving all the health care providers in the provision of safe motherhood services can increase the availability of the ANC services for the clients rather than to allot the responsibility of safe motherhood services provision on certain cadres such as health visitors and doctors.

Figure (X1): Availability of ANC services on the date of the visit:

The ANC services were available on the date of visit in 67% of the health facilities. This is lesser than the percentage of health facilities that provide ANC services as shown in table (39). Some health facilities used not to provide ANC services on daily basis but rather on scheduled days per week.

Table (49): Means of days per week for provision of ANC services:

<i>Locality</i>	<i>Mean –days for family planning services</i>
<i>Shaikan</i>	3.3
<i>Bara</i>	3.9
<i>Sodary</i>	3.4
<i>Gabrat Elsheikh</i>	2.5
<i>Um Rwaba</i>	2.2
<i>Total</i>	3.0

The mean of days per week for provision of ANC services in health facilities in Bara locality was 3.9 while in um Rwaba was 2.2. None of the facilities provide ANC services on daily basis. The mean of the mean for all the facilities in all localities was 3 days.

Table (50): The status of the place where the ANC attendants are examined:

<i>The place</i>	<i>Number</i>	<i>Percentage</i>
<i>Separate room with door and curtain</i>	16	22.2
<i>Curtained area</i>	3	4.2
<i>Same room with others</i>	53	73.6
<i>Total</i>	23	100

In 22.2% of the health facilities, the ANC attendants were examined in a separate room with door and curtain. In about 4.2% of the health facilities, the ANC attendants were examined in a curtained area in the facility. In 73% of the health facilities, the ANC attendants were examined in the same room with other attendants/clients. This result is tending to prove that privacy element is not well addressed as an important component of quality ANC services at the facility level.

Table (51): ANC resources checked in the health facilities:

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Examination couch</i>	Count	41	31	72
	%	56.9	43.1	100
<i>Sphygmomanometer</i>	Count	40	32	72
	%	55.6	44.4	100
<i>Stethoscope</i>	Count	54	18	72
	%	75	25	100
<i>Thermometer</i>	Count	42	30	72
	%	58.3	41.7	100
<i>Fetal stethoscope</i>	Count	40	32	72
	%	55.6	44.4	100
<i>Adult weighing scale</i>	Count	17	55	72
	%	23.56	76.4	100
<i>Gloves</i>	Count	41	31	72
	%	56.9	43.1	100
<i>Soap and water for hand washing</i>	Count	65	7	72
	%	90.3	9.7	100
<i>Dustbin</i>	Count	55	17	72
	%	76.4	23.6	100

The examination couch was seen in 56.9% of the health facilities that provide ANC services while in 43.1% the examination couch was not seen. In such facilities, the ANC attendants were examined in another room or another couch and this may result in difficulties or inconvenience for the pregnant ladies.

Sphygmomanometer and Stethoscope were seen in 55.6% and 75% of the facilities respectively. These tools are essential for measuring the blood pressure of the pregnant ladies. If health facilities are lacking such tools, the quality of the provided ANC services is questionable.

Fetal stethoscope was seen in 55.6% of the health facilities while in 44.4% of the health facilities no fetal stethoscope was seen. The ANC examination is incomplete if the fetal heart sounds are not detected.

The adult weighing scale was seen in 23.6% of the health facilities that provide ANC services. In 76.4% of the health facilities that provide ANC services, no adult weighing scale was seen. In such facilities, the changes in the body weight encountered during pregnancy could not be detected.

Gloves were seen in 56.9% of the health facilities that provide ANC services while the soap and water for hand washing were seen in 90.3% of them.

Table (52): The cleanliness of the examination couch:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Clean</i>	25	61
<i>Not clean</i>	16	39
<i>Total</i>	41	100

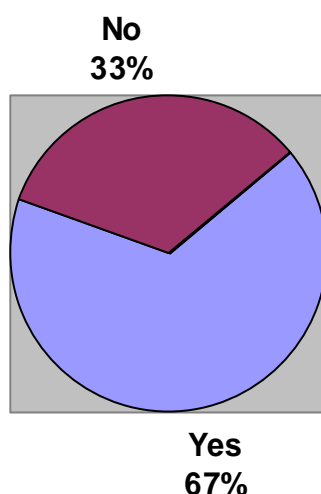
The examination couch was clean (no visible stain, dust, blood) in 61% of the health facilities that provide ANC services while in 39% of them, the examination couch was not clean.

Table (53): The covering of the examination couch with a sheet:

<i>The covering</i>	<i>Number</i>	<i>Percentage</i>
<i>Covered</i>	11	26.8
<i>Not covered</i>	30	73.2
<i>Total</i>	41	100

The examination couch was covered with a sheet in 26.8% of the health facilities that provide ANC services while in 73.2% of them; the examination couch was not covered.

Figure (X11): Availability of delivery services on the date of the visit:



The delivery services were available on the date of the visit in 67% of the health facilities, which provide such services. In 33.3% of the health facilities, which provide delivery services, such services were not available on the date of the visit. This might be due to technical problems in the delivery room or shortage of midwifery cadres in the facility.

Table (54): Distribution of the health facilities that provide delivery services by locality

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	3	14.3
<i>Bara</i>	6	28.6
<i>Sodary</i>	4	19
<i>Gabrat Elsheikh</i>	3	14.3
<i>Um Rwaba</i>	5	23.8
<i>Total</i>	21	100

28.3% of the health facilities that provide delivery services were located in Bara locality. This represents also about 28.6% of the total health facilities included in the

sample from Bara locality. 23.8% of the health facilities that provide delivery services were located in Um Rwaba locality. This represents about 12.5% of the total health facilities included in the sample from Um Rwaba locality. 19% of the health facilities that provide delivery services were located in Sodary locality. This represents about 36.4% of the total health facilities included in the sample from Sodary locality. 14.3% of the health facilities that provide delivery services were located in Shaikan locality. This represents 15% of the total facilities included in the sample from Shaikan locality. 14.3% of the health facilities that provide delivery services were located in Gabrat Elsheikh locality. This represents 50% of the total health facilities included in the sample.

Table (55): Distribution of the health facilities that provide delivery services by type

<i>Type of the health facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	9	42.9
<i>Health center</i>	3	14.3
<i>Dressing station</i>	1	4.8
<i>Dispensary</i>	6	28.6
<i>PHC unit</i>	2	9.5
<i>Total</i>	21	100

42.9% of the health facilities that provide delivery services were hospitals, 28.6% were dispensaries, and 14.3% were health centers. Few PHC units (9.5%) and dressing stations provided delivery services.

Table (56): The status of the place where delivery services are provided at the facility level:

<i>The place</i>	<i>Number</i>	<i>Percentage</i>
<i>Separate room with door and curtain</i>	19	90.5
<i>Same room with others</i>	2	9.5
<i>Total</i>	21	100

In 90% of the health facilities, which provide delivery services, the services were provided in a separate room with a door and curtains (delivery room). The result points to addressing privacy element as an important component of quality delivery services at the facility level.

Table (57): Delivery resources checked in the health facilities

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Delivery table</i>	Count	12	9	21
	%	57.1	42.9	100
<i>Sphygmomanometer</i>	Count	16	5	21
	%	76.2	23.8	100
<i>Stethoscope</i>	Count	16	5	21
	%	76.2	23.8	100
<i>Thermometer</i>	Count	12	9	21
	%	57.1	42.9	100
<i>Fetal stethoscope</i>	Count	16	5	21
	%	76.2	23.8	100
<i>Neonatal weighing scale</i>	Count	10	11	21
	%	47.6	52.4	100
<i>Sterile gloves</i>	Count	15	6	21
	%	71.4	28.6	100
<i>Soap and water for hand washing</i>	Count	20	1	21
	%	95.2	4.8	100
<i>Syringes & Needles</i>	Count	16	5	21
	%	76.2	23.8	100
<i>Needle holder</i>	Count	10	11	21
	%	47.6	52.4	100
<i>Sterile scissors</i>	Count	14	7	21
	%	66.7	33.3	100
<i>Suture materials</i>	Count	13	8	21
	%	61.9	38.1	100
<i>Cord clamp</i>	Count	10	11	21
	%	47.6	52.4	100
<i>Ergometrine injections</i>	Count	9	12	21
	%	42.9	57.1	100
<i>Dustbin</i>	Count	12	9	21
	%	57.1	42.9	100

Delivery table was seen in 57.1 % of the health facilities that provide delivery services. In 42.9% of the health facilities that provide delivery services, delivery table was not seen and in such facilities other tables were used instead for managing deliveries.

Sphygmomanometer, stethoscope and the fetal stethoscope were seen in 76.2% of the health facilities that provide delivery services. Such instruments were not seen in 23.8% of the health facilities and were not used by the health care providers for managing deliveries.

The neonatal weighing scale was seen in 47.6% of the health facilities that provide delivery services while it was not seen in 52.4% of the facilities. Recording the birth weight was not routinely practiced in more than 50% of the health facilities that provide delivery services.

Soap and water for hand washing was seen in 95.2% of the health facilities that provide delivery services. Such practice is essential for cleanliness of the deliveries. Sterile gloves were seen in 71.4% of the health facilities that provide delivery services while in 28.6% of the facilities, sterile gloves were not seen. The usage of the sterile gloves as a tool for infection control during deliveries was not widely practiced by the providers in such facilities.

The syringes and needles were seen in 76.2% of the health facilities that provide delivery services, the sterile scissors in 66.7%, the suture materials in 61.9%. The cord clamp and the needle holder were seen in 47.6% of the health facilities that provide delivery services. The Ergometrine injections were seen in 42.9% of the health facilities that provide delivery services.

Conclusively there were variations in the availability of resources needed for provision of delivery services and this might be attributed to lack of delivery service standards to be used for structuring the quality of the delivery services.

Table (58): The cleanliness of the delivery couch:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Clean</i>	10	47.6
<i>Not clean</i>	11	52.4
<i>Total</i>	21	100

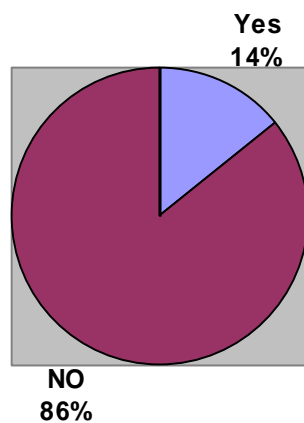
In 52.4% of the health facilities that provide delivery services, the delivery couch was not clean while in 47.6% of the health facilities; the delivery couch was found clean. The cleanliness of the delivery couch is significant for infection control.

Table (59): The covering of the delivery couch with a sheet:

<i>The covering</i>	<i>Number</i>	<i>Percentage</i>
<i>Covered</i>	17	81
<i>Not covered</i>	4	19
<i>Total</i>	21	100

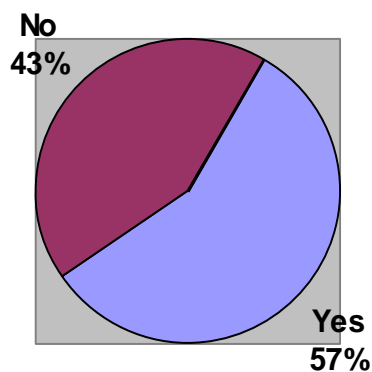
In about 81% of the health facilities that provide delivery services, the delivery couch was found covered with a sheet.

Figure (X111): distribution of health facilities according to provision of child health services



Child health services were provided in 14% of the sampled health facilities while 86% of them did not provide such services on routine basis.

Figure (XIV): Provision of child health services on the date of visit:



Child health services were available on the date of visit in 57% of the health facilities that provide such services. This indicates that some facilities do organize child health clinics on specific days per week.

Table (60): Distribution of the health facilities that provide child health services by locality:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	8	57.1
<i>Bara</i>	1	7.1
<i>Sodary</i>	2	14.3
<i>Um Rwaba</i>	3	21.4
<i>Total</i>	14	100

57.1% of the health facilities that provide child health services were located in Shaikan locality while limited number of health facilities in other localities used to provide child health services.

Table (61): Distribution of the health facilities that provide child health services by type:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	4	28.6
<i>Health center</i>	5	35.7
<i>Dispensary</i>	3	21.4
<i>PHC unit</i>	2	14.3
<i>Total</i>	14	100

35.7% of the health facilities that provide child health services were health centers, 28.6% were hospitals. Limited number of dispensaries (21.4%) and PHC units (14.3%) provide child health services.

Table (62): child health services resources checked in the health facilities

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Examination couch</i>	Count	6	8	14
	%	42.9	57.1	100
<i>Sphygmomanometer</i>	Count	5	9	
	%	35.7	64.3	100
<i>Stethoscope</i>	Count	9	5	14
	%	64.3	35.7	100
<i>Thermometer</i>	Count	9	5	14
	%	64.3	37.7	100
<i>Weighing scale</i>	Count	9	5	14
	%	64.3	35.7	100
<i>Gloves</i>	Count	8	6	14
	%	57.1	42.9	100
<i>Soap and water for hand washing</i>	Count	12	2	14
	%	85.7	14.3	100
<i>Dustbin</i>	Count	12	2	14
	%	85.7	14.3	100

In 42.9% of the health facilities that provide health services, an examination couch was seen while in 57.1% of them, no examination couch was seen.

A sphygmomanometer and a stethoscope were seen in 35.7% and 64.3% of the health facilities that provide child health services.

A thermometer and a weighing scale were seen in 64.3%. Gloves were seen in 57.1 of the health facilities and the soap and water for hand.

Table (63): The cleanliness of the examination couch:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Clean</i>	6	42.9
<i>Not clean</i>	8	57.1
<i>Total</i>	14	100

The examination couch was found clean in 42.9% of the health facilities that provide child health services while in 57.1 % of them the examination couch was found unclean.

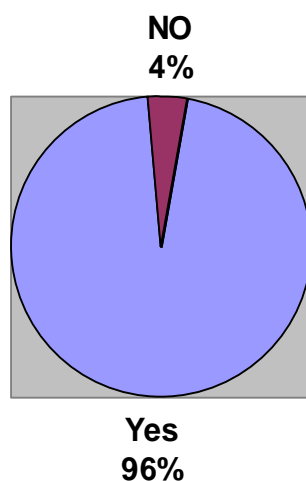
Table (64): The covering of the examination couch with a sheet:

<i>The covering</i>	<i>Number</i>	<i>Percentage</i>
<i>Covered</i>	2	14.3
<i>Not covered</i>	12	85.7
<i>Total</i>	14	100

In 14.3% of the health facilities that provide child health services, the examination couch was covered with a sheet while in 85.7% of the facilities it was not covered with a sheet.

It is clear from such checked resources that the child health services were limited in coverage and in the facilities that provide child health services, the basic physical resources, instruments and even human resources were inadequate to deliver quality services.

Figure (XV): Availability of immunization services in the health facilities:



The immunization services were available in 96% of the health facilities included in the sample. This indicates the wide coverage of the immunization services in North Kordofan State.

Table (65): The availability of immunization services (days/week or month) by type of the health facility:

<i>Number of immunization days</i>	<i>Type of the health facility</i>					<i>Total</i>
	<i>Hospital</i>	<i>Health center</i>	<i>Dressing station</i>	<i>Dispensary</i>	<i>PHC unit</i>	
<i>1-2 days per month</i>	0	3	11	11	38	63
<i>3-5 days per month</i>	1	1	0	2	3	7
<i>Twice per week</i>	5	3	1	5	1	15
<i>The whole week</i>	4	3	0	1	1	9
<i>Total</i>	10	10	12	19	43	94

In 63 of health facilities that provide immunization services (67.4%); the immunization services were available for 1-2 days per month while in 7 of health facilities that provide immunization services (7.4%); the immunization services were available for 3-5 days per month. In 15 of the health facilities (16%); the immunization services were available twice per week while in 9 of the health facilities (9.2%); the immunization services were available for the whole week. Despite the wide coverage of immunization services, still the accessibility is questionable as less than 10% of the health facilities used to provide immunization services for the whole week.

Table (66): Resources checked for immunization services in the health facilities:

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Refrigerator for the vaccines</i>	Count	23	71	94
	%	24.5	75.6	100
<i>Temperature monitoring chart fixed to refrigerator</i>	Count	18	5	23
	%	78.3	21.7	100
<i>A functioning thermometer in the refrigerator</i>	Count	19	4	23
	%	82.6	17.4	100
<i>Freezing monitor</i>	Count	12	11	23
	%	52.2%	47.8	100

A refrigerator for the vaccines seen in 24.5% of the health facilities that provide immunization services. In 75.6% of the health facilities, no refrigerator for the vaccines was seen. In such facilities, the vaccines were procured from higher facilities on the date of immunization sessions. Such practice might affect the efficacy of the vaccines unless the precautions for transport of the vaccines were rigorously considered. Temperature monitoring chart fixed to the refrigerator was seen in 78.3% of the health facilities, which had refrigerators for vaccines. A functioning thermometer in the refrigerator was seen in 82.6% of the health facilities, which had refrigerators for the vaccines. The freezing monitor was seen in 52.2% of the health facilities. This is indicative that in most of the health facilities, the vaccines were preserved using the thermometer in the refrigerator although less health facilities used temperature-monitoring chart fixed to the refrigerator.

Table (67): Availability of different vaccines in the health facilities:

<i>Item</i>		<i>Available</i>	<i>Not available</i>	<i>Total</i>
<i>The availability of vaccines on the date of visit</i>	Count	23	71	94
	%	24.5	75.5	100
<i>Measles vaccine</i>	Count	18	5	23
	%	78.3	21.7	100
<i>Polio vaccine</i>	Count	23	0	23
	%	100	-	100
<i>BCG</i>	Count	21	2	23
	%	91.3	8.7	100
<i>DPT</i>	Count	23	0	23
	%	100	0	100
<i>Tetanus toxoid</i>	Count	23	0	23
	%	100	0	100

The vaccines were available in the health facilities that had refrigerators. Polio vaccine, DPT and tetanus toxoid were available in all facilities that had refrigerators. Measles vaccine and BCG were available in 78.3% and 91.3% of the facilities, which had refrigerators for vaccines. The availability of the vaccines in the health facilities

with a refrigerator was high and the vaccine supply system was efficiently functioning.

Table (68): Other resources checked for immunization services in the health facilities:

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Immunization record</i>	Count	68	26	94
	%	72.3	27.7	100
<i>Child health cards</i>	Count	41	53	94
	%	43.6	56.4	100
<i>Weighing scale for the babies</i>	Count	22	72	98
	%	23.4	76.6	100
<i>Immunization IEC materials</i>	Count	61	33	94
	%	64.9	35.1	100
<i>Soap and water for hand washing</i>	Count	70	24	94
	%	74.5	25.5	100
<i>Dustbin</i>	Count	65	29	94
	%	69.1	30.9	100

The immunization record was seen in 72.3% of the health facilities that provide immunization services. The child health cards were seen in 43.6% of the health facilities that provide immunization services. The immunization IEC materials were seen in 64.9% of the health facilities that provide immunization services.

Table (69): The site in the facility where the child health services were provided:

<i>The site within the facility</i>	<i>Number</i>	<i>Percentage</i>
<i>In the outpatient department</i>	7	50
<i>MCH unit</i>	5	35.7
<i>Both</i>	2	14.3
<i>Total</i>	14	100

The child health services were provided in the outpatient department in 50% of the health facilities, which provide such services. In 35.7% of the health facilities that

provide child health services, the services were provided in the MCH unit. It is accepted that the child health services are to be made available in the outpatient department but the quality of the provided services is questionable. The quality of child health services is better when provided by the MCH units. Currently the number of the MCH units in the health facilities is limited.

Table (70): The status where the outpatient attendants were being examined:

<i>The place</i>	<i>Number</i>	<i>Percentage</i>
<i>Separate room with door and curtain</i>	30	30.6
<i>Curtained area</i>	2	2
<i>Same room with others</i>	66	67.3
<i>Total</i>	98	100

In 30.6% of the health facilities, the outpatient attendants were examined in a separate room with door and curtain. In 67.3% of the health facilities, the outpatient attendants were examined in the same room with others.

Table (71): Outpatient resources checked in the health facilities

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Examination couch</i>	Count	55	43	98
	%	56.1	43.9	100
<i>Sphygmomanometer</i>	Count	43	55	98
	%	43.9	56.1	100
<i>Stethoscope</i>	Count	59	39	98
	%	60.2	39.8	100
<i>Thermometer</i>	Count	51	47	98
	%	52	48	100
<i>Adult weighing scale</i>	Count	27	71	98
	%	27.6	72.4	100
<i>Soap and water for hand washing</i>	Count	83	15	98
	%	84.7	15.3	100
<i>Dustbin</i>	Count	70	28	98
	%	71.4	28.6	100

The examination couch was seen in the outpatient of 56.1% of the sampled health facilities. The sphygmomanometer was seen in 43.9% of the sampled health facilities. A stethoscope was seen in 60.2% while a thermometer was seen in 52% of the health facilities. An adult weighing scale was seen in only 27% of the sampled health facilities. Conclusively some facilities were well equipped with such basic equipment while others were poorly equipped.

Table (72): The cleanliness of the examination couch:

<i>The cleanliness</i>	<i>Number</i>	<i>Percentage</i>
<i>Clean</i>	32	58.2
<i>Not clean</i>	23	41.8
<i>Total</i>	55	100

The examination couch was clean in 58.2% of the health facilities while it was not clean in 41.8%. The cleanliness of the couch is a simple element for the quality of the services in the outpatient units.

Table (73): The covering of the examination couch with a sheet:

<i>The covering</i>	<i>Number</i>	<i>Percentage</i>
<i>Covered</i>	12	21.8
<i>Not covered</i>	43	78.2
<i>Total</i>	55	100

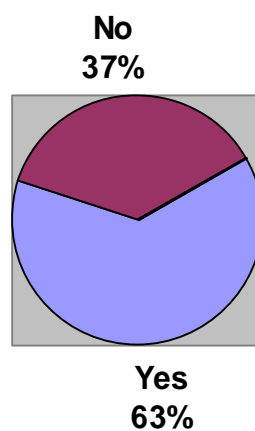
The examination couch was covered with a sheet in 21.8% while it was not covered in 78.2% of the health facilities. It is ethically important to use a sheet during examination of the patients.

Table (74): Distribution of the outpatients visits by locality:

<i>Locality</i>	<i>Total number of outpatient visits per last year</i>	<i>Mean outpatient visit per facility last year</i>
<i>Shaikan</i>	157338	7867
<i>Bara</i>	43364	2065
<i>Sodary</i>	41894	3809
<i>Gabrat</i>	10144	1691
<i>Elsheikh</i>		
<i>Um Rwaba</i>	142001	3550
<i>Total</i>	394741	4027

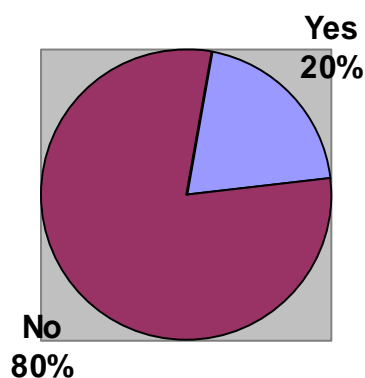
The mean outpatient visit per facility in Shaikan locality last year was 7867 while the mean outpatient visit per facility in Gabrat Elsheikh was 1591. The high mean outpatient per health facility in Shaikan locality is indicative that these facilities are serving densely populated areas and thus they are more visited. The low mean outpatient visit per facility is indicative that these health facilities are serving less populated areas and thus they are less visited.

Figure (XV1): The distribution of the health facilities according to the availability of a waiting area for the patients in the facility:



63% of the health facilities had a waiting area for the patients in the facility while 37% of the facilities did not have a waiting area for the patients. This might be explained by the fact that some health facilities like the dressing stations and the PHC units are composed of a single room without any additions or waiting areas.

Figure (XV11): The distribution of the health facilities according to the availability of beds for admitted cases:



20% of the health facilities had beds for the admitted cases and as expected these were hospitals. 80% of the health facilities had no beds for admission and these included the secondary and primary health facilities.

Table (75): Distribution of beds in the health facilities by locality:

<i>Locality</i>	<i>Total number of beds</i>	<i>Mean</i>
<i>Shaikan</i>	620	310
<i>Bara</i>	85	43
<i>Sodary</i>	54	27
<i>Gabrat Elsheikh</i>	88	44
<i>Um Rwaba</i>	220	110
<i>Total</i>	1667	63

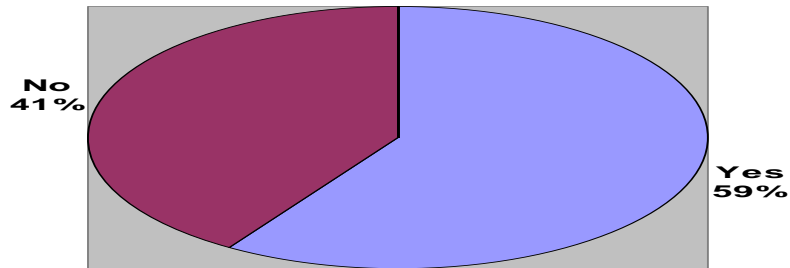
The total number of beds in the sampled health facilities mounted to 1667. About **37.2%** of the total beds were placed in the health facilities in Shaikan locality (Two hospitals). In Sodary locality only **3%** of the beds were placed (two hospitals). The highest mean of beds per facility was in Shaikan locality (310) and the lowest mean of beds per facility was in Sodary locality (27). The results reflect the wide disparities in availability of beds between health facilities from one locality to another.

Table (76): Admitted cases last year in hospitals by locality:

<i>Locality</i>	<i>Total number of admitted cases last year</i>	<i>Mean admitted cases per hospital last year</i>
<i>Shaikan</i>	24929	12465
<i>Bara</i>	1443	722
<i>Sodary</i>	753	377
<i>Gabrat</i>	620	310
<i>Elsheikh</i>		
<i>Um Rwaba</i>	7532	3766
<i>Total</i>	35277	3528

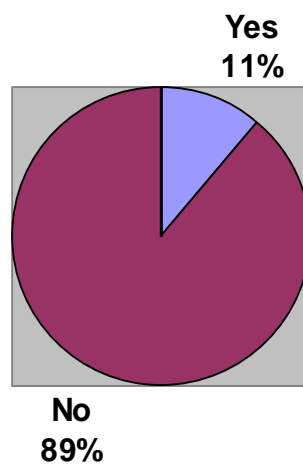
The total number of the admitted cases last year in the 10 hospitals included in the sample was 35277 cases with a mean of 3528 cases per hospital per year. The highest mean of admitted cases per hospital per year was in Shaikan locality, which was 12465 cases. The lowest mean of admitted cases per hospital per year was in Gabrat El sheikh locality, which was 310 cases. The mean of the admitted cases per hospital per year in Shaikan locality was 40 times the mean of the admitted cases per hospital per year in Gabrat El sheikh locality. This is justified by the fact that more critical and complicated cases that need admission were referred and managed in the hospitals in Shaikan locality.

Figure (XV111): The distribution of the health facilities (excluding hospitals) according to availability of a waiting room for short stay:



59% of the sampled health facilities (excluding hospitals) had a waiting room for short stay while 41% of them did not have such a waiting room.

Figure (XV1V): The distribution of the health facilities according to availability of an operating theatre:



11% of the health facilities had an operating theatre while 89% had no operating theatres. All the tertiary hospitals included in the sample had operating theatres. Only

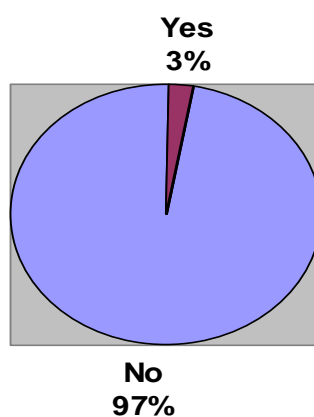
one health center had an operating theatre. Minor operating theatres in such facilities could help the users in obtaining accessible services for minor surgical ailments.

Table (77): Operating theatres resources checked in the health facilities

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Surgical table</i>	Count	10	1	11
	%	90.9	9.1	100
<i>Anesthesia Machine</i>	Count	7	4	11
	%	63.6	36.4	100
<i>Sterilization drum</i>	Count	10	1	11
	%	90.9	9.1	100
<i>Hot air oven</i>	Count	7	4	11
	%	63.6	36.4	100
<i>C-section set</i>	Count	10	1	11
	%	90.9	9.1	100
<i>Laparotomy set</i>	Count	7	4	11
	%	63.6	36.4	100

In 90.9% of the health facilities that had an operating theatre, surgical table, sterilization drum and C-section set were seen. Anesthesia machine, hot air ovens and Laparotomy set were seen in 63.6% of the facilities that had an operating theatre.

Figure (XX): The distribution of the health facilities according to the availability of blood transfusion facilities:



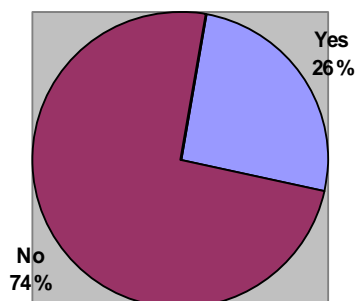
The blood transfusion facilities were available in 3% of the health facilities that had an operating theatre. In 97% of the health facilities that had an operating theatre, no blood transfusion facilities were available. The result indicates that blood transfusion services were limited in most of the health facilities that had an operating theatre. In addition it seems that unsafe blood transfusion was widely practiced in the facilities lacking the blood transfusion services.

Table (78): Major and minor surgical operations per year:

<i>Locality</i>	<i>Total number of minor surgical operations per last year</i>	<i>Mean minor surgical operation per facility per year</i>	<i>Total number of major surgical operations per last year</i>	<i>Mean major surgical operation per facility per year</i>
<i>Shaikan</i>	803	402	2339	1170
<i>Bara</i>	261	131	21	11
<i>Sodary</i>	44	22	4	2
<i>Gabrat</i>	110	55	2	1
<i>Elsheikh</i>				
<i>Um</i>	250	125	332	166
<i>Rwaba</i>				
<i>Total</i>	1468	147	2698	270

The total number of minor surgical operations per last year in the facilities with an operating theatre mounted to 1468 operations with a mean of 147 operations per facility per year. The total number of major surgical operations in the facilities with an operating theatre per last year mounted to 2698 with a mean of 270 operations per facility per year. It is noted that the health facilities in Sodary and Gabrat El sheikh localities performed a limited number of minor and major surgical operations per last year despite that they have had adequate surgical resources at least for the minor surgical operations. Such low performance of surgical operations might be responsible for increasing the load on the health facilities in Shaikan and other localities.

Figure (XX): The distribution of the health facilities according to availability of a laboratory:



26% of the sampled health facilities had a laboratory while 74% of the sampled health facilities had no laboratory. This is indicative of the limited availability of laboratory services especially in the secondary and primary health facilities.

Table (79): Distribution of the health facilities providing laboratory services by locality:

<i>Locality</i>	<i>Number</i>	<i>Percentage</i>
<i>Shaikan</i>	9	34.6
<i>Bara</i>	5	19.2
<i>Sodary</i>	3	11.5
<i>Gabrat Elsheikh</i>	2	7.7
<i>Um Rwaba</i>	7	26.9
<i>Total</i>	26	100

34.6% of the health facilities providing laboratory services were located in Shaikan locality and 26.9% of the health facilities providing laboratory services were located in Um Rwaba locality. Only 11.55 and 7.7% of the health facilities providing laboratory services were located in the health facilities of Sodary and Gabrat Elsheikh localities respectively. The laboratory services in the health facilities included in the sample were limited. In addition the distribution of the laboratory services showed marked inequality from the main locality to the other underserved localities.

Table (80): Distribution of the health facilities providing laboratory services by type:

<i>Type of the facility</i>	<i>Number</i>	<i>Percentage</i>
<i>Hospital</i>	10	38.5
<i>Health center</i>	9	34.6
<i>Dispensary</i>	4	15.4
<i>PHC unit</i>	3	11.5
<i>Total</i>	26	100

38.5% of the health facilities providing laboratory services were hospitals and 34.6% of them were health centers. 15.4% and 11.5% of the health facilities providing laboratory services dispensaries and PHC units respectively. The bulk of the health facilities providing laboratory services were hospitals and health centers, few primary health care facilities provided laboratory services.

Table (81): The location of the laboratory within the facility:

<i>Location of the laboratory</i>	<i>Number</i>	<i>Percentage</i>
<i>In a separate room with door</i>	19	76
<i>Same room with other</i>	7	24
<i>Total</i>	26	100

In 73.1% of the health facilities, the laboratory was located in a separate room while in 26.9% the laboratory was located with other units.

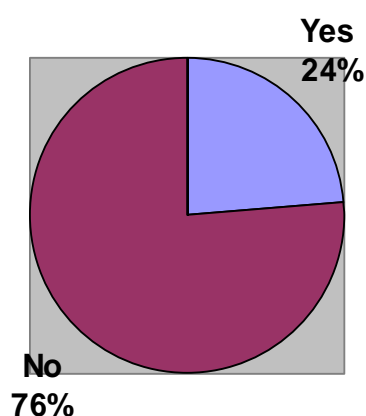
Table (82): laboratory resources checked in the health facilities providing laboratory services:

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>A functioning microscope</i>	Count	24	2	26
	%	92.3	7.7	100
<i>Reagents for the blood film for malaria</i>	Count	22	4	26
	%	84.6	15.4	100
<i>Reagents for Widal test</i>	Count	15	11	26
	%	57.7	42.3	100
<i>Glucometer</i>	Count	16	10	26
	%	61.5	38.5	100
<i>Blood urea kits</i>	Count	7	19	26
	%	26.9	73.1	100
<i>Calorimeter</i>	Count	12	14	26
	%	46.2	53.8	100
<i>Reagents for VDRL test</i>	Count	12	14	26
	%	46.2	53.8	100
<i>HIV/AIDS testing kits</i>	Count	9	17	26
	%	34.6	65.4	100

A functioning microscope was seen in 92.3% of the facilities providing laboratory services. The reagents for blood film for malaria were seen in 84.6% of the health facilities providing laboratory services while the reagents for Widal test were seen in 57.7% of then health facilities providing laboratory services. Thus a significant proportion of such health facilities were lacking the diagnostic reagents for two major endemic diseases namely malaria and enteric fever. The Glucometer, the blood urea kits and the calorimeter were respectively available in 61.5%, 26.9% and 46.2% of the health facilities providing laboratory services. Thus a large proportion of such facilities could not provide diagnostic services for patients suffering from common non-communicable diseases. Reagents for VDRL test and HIV/AIDS testing kits were available respectively in 46.2% and 34.5% of the health facilities providing laboratory services. Thus around half of such facilities could provide diagnostic services for syphilis and only one of them could provide diagnostic service for HIV/AIDS cases.

The available human resources providing laboratory services as shown in table (14): 38 laboratory assistants and 24 laboratory technicians were employed in the sampled health facilities. 55.3% of the laboratory assistants and 70.8% of the laboratory technicians were employed in the health facilities in Shaikan locality. The laboratory services were unevenly distributed with marked variations between Shaikan locality and the other localities.

Figure (XX1): The distribution of the health facilities according to the availability of a pharmacy:



24% of the health facilities had a pharmacy while 76% of them had no pharmacies. In all the facilities with a pharmacy, the pharmacies were located in a separate room with door.

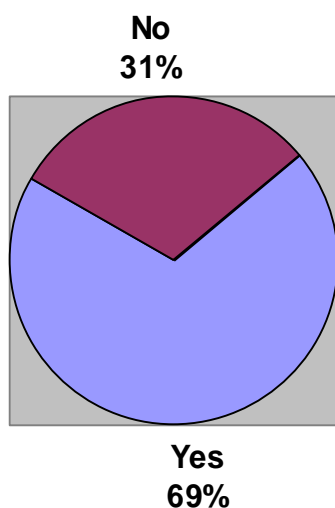
Table (83): The status of the physical structure of the pharmacy:

<i>Status</i>	<i>Number</i>	<i>Percentage</i>
<i>One room with one or two cupboard</i>	5	21.7
<i>One room with adequate shelve and cupboard</i>	10	43.5
<i>One room with adequate shelves and cupboards backed up with a store room</i>	6	26.1
<i>Others</i>	2	8.7
<i>Total</i>	23	100

In 43.6% of the health facilities, the pharmacy was composed of one room with adequate shelves and cupboards. In 26.1% of the health facilities, the pharmacy was

composed of one room with adequate shelves and cupboards backed up with a storeroom.

Figure (XX11): The distribution of the health facilities according to the regular procurement of drugs supplies to the health facility:



In 69% of the health facilities, the drugs supplies were procured regularly while in 31% of them; the drugs supplies were not procured regularly. This is indicative that the efficiency of the drug supply system is reasonable to regularly sustain the availability of drugs at the facility level.

Table (84): The percentage of the health facilities for which the drugs supplies procured regularly by type of facility:

<i>Type of the facility</i>	<i>Drugs supplies procured regularly</i>		<i>Total</i>
	Yes	No	
<i>Hospital</i>	90	10	100
<i>Health center</i>	72.7	27.3	100
<i>Dressing station</i>	58.3	41.7	100
<i>Dispensary</i>	73.7	26.3	100
<i>PHC unit</i>	65.2	34.8	100

The drugs supplies were procured regularly for 90% of the hospitals, 73.7% of the dispensaries and 72.7% of the health centers. The drugs supplies were procured regularly for lesser percentage of PHC units (65.2%) and dressing stations (58.3%).

The drugs supplies were procured regularly to the tertiary health facilities rather than the primary health care facilities.

Table (85): Drugs checked in the health facilities:

<i>Item</i>		<i>Seen</i>	<i>Not seen</i>	<i>Total</i>
<i>Artemether tables/injections</i>	Count	35	63	98
	%	35.7	64.3	100
<i>Quinine tablets/injections</i>	Count	36	62	98
	%	36.7	62.3	100
<i>Fansidar tablets</i>	Count	62	36	98
	%	63.3	36.7	100
<i>Procaine penicillin</i>	Count	79	19	98
	%	80.6	19.4	100
<i>Mebendazole tablets</i>	Count	50	48	98
	%	50.1	49	100
<i>Metronidazole tablets</i>	Count	83	15	98
	%	84.7	15.3	100
<i>Amoxicillin capsules</i>	Count	83	15	98
	%	84.7	15.3	100
<i>Tetracycline capsules</i>	Count	82	16	98
	%	83.7	16.3	100
<i>Seprtin tablets</i>	Count	79	19	98
	%	80.6	19.4	100
<i>Ciprofloxacin</i>	Count	35	63	98
	%	35.7	64.3	100
<i>ORS</i>	Count	51	47	98
	%	52	48	100
<i>Vitamin A capsules</i>	Count	69	29	98
	%	70.4	29.6	100
<i>Iron and foliate tablets</i>	Count	68	30	98
	%	69.4	30.6	100

The antibiotics including Amoxicillin capsules, Tetracycline capsules and Seprtin tablets and procaine penicillin were in about 80% of the health facilities.

Ciprofloxacin was seen in 35.7% of the health facilities. This is indicative that antibiotics were widely available and widely prescribed in the health facilities included in the study sample. Artemether tablets/injections was in 35.7% of the facilities pointing to the low availability of the drug, which was recently recommended by the National Malaria Control program. The quinine and the Fansidar tablets were seen in and 36.7% and 63.3 of the health facilities respectively. ORS was seen in 52% of the health facilities. This indicates that ORS was less prescribed for the management of diarrhea. Vitamin A capsules were seen in 70.4% of the health facilities while the iron and foliate tablets were seen in 69.4% of them.

Table (86): Number of drugs prescribed per outpatient visit by facility:

<i>Health facility</i>	<i>Mean number of drugs prescribed per outpatient visit</i>
<i>Hospital</i>	3
<i>Health center</i>	2
<i>Dressing station</i>	2
<i>Dispensary</i>	2
<i>PHC unit</i>	2
<i>Overall mean</i>	2

The overall mean number of drugs prescribed per outpatient visit was 2 while the mean for the hospital was 3. The mean number of drugs prescribed per outpatient visit was 2 for the other health facilities. This might indicate the tendency of the health care providers in hospitals to prescribe more drugs as they were managing complicated cases.

Table (87): The average cost in Sudanese Dinnars per prescription by facility:

<i>The health facility</i>	<i>The total cost per 10 prescriptions</i>	<i>The mean cost per prescription</i>
<i>Hospital</i>	14641	1464.1
<i>Health center</i>	4625	420.5
<i>Dressing station</i>	8500	850
<i>Dispensary</i>	13774	688
<i>PHC unit</i>	29835	648.5
<i>Total</i>	71376	735.8

The mean cost per prescription in Sudanese Dinnars for the hospitals was found to be 1464.5, which was about thrice the cost per prescription for the health center and twice the cost per prescription for the PHC unit. This might be explained on the nature of the complicated cases diagnosed at the hospital level in comparison to the less complicated cases diagnosed at the health center and the PHC unit. Thus the number of the prescribed drugs needed for the hospital cases was greater and the cost per prescription was higher.

Table (88): The average number of items available in the pharmacy:

<i>Health facility</i>	<i>Average number of items available in the pharmacy</i>
<i>Hospital</i>	107
<i>Health center</i>	48
<i>Dressing station</i>	21
<i>Dispensary</i>	22
<i>PHC unit</i>	18
<i>Total</i>	33

The average number of items available in the pharmacy was 107 in the hospitals, which was twice the items available in the health center (48). The average number of items available in the dressing station (21), the dispensary (22) and the PHC unit (18) which was about half of those items available in the health centers. Such distribution of the item availability is tallying with the functions and type of the health facilities.

Table 89: Distribution of the health facility according to availability of the list of essential drugs:

<i>Health facility</i>	<i>The list of essential drugs</i>		<i>Total</i>
	Seen	Not seen	
<i>Hospital</i>	7	3	10
	70	30	100
<i>Health center</i>	8	3	11
	72.7	27.3	100
<i>Dressing station</i>	0	11	11
	0	100	100
<i>Dispensary</i>	5	15	20
	25	75	100
<i>PHC unit</i>	9	37	46
	19.6	80.4	100
<i>Total</i>	29	69	98
	29.6	70.4	100

The list of the essential drugs was seen in 72.7% of the health centers and 70% of the hospitals. In comparison to the other health facilities: None of the dressing stations had the essential list of drugs, 25% of the dispensaries and 19.6% of the PHC units had the list of essential drugs. The list of the essential drugs was commonly used in the hospitals and the health centers than the primary health care facilities.

6. REPORT ON THE RESULTS OF THE FOCUS GROUP DISCUSSIONS: HEALTH SERVICES

- The five focus group discussions (FGD) were held in the catchment areas of the selected health facilities. The participants were both males and females and the total number was about 50.
- The following issues were discussed by the participants:
 - Accessibility of the health facilities by the users.
 - Affordability of the health services by the users.
 - Barriers of health services utilization.
 - Community supporting systems for health.
 - Perception of the quality of health services by the users.
 - Measuring quality attributes including privacy, waiting time and ease access of services.

6.1 Accessibility of the health facilities by the users:

- **The selection of the location of the health facility:**

The participants could not state clearly that the citizens were consulted in the selection of the health facility location although they emphasized that the government or the local authority mostly decided the selection. The participants agreed that the participation of the community members is well marked in building and maintenance of the health facilities rather than the selection of the location of the facility.

- **The accessibility of the current location of the health facilities:**

Most of the participants described the current location of the health facilities as being accessible by them. This is applicable for those who are living in the neighboring areas. For those participants referred from the far rural areas, the current location of the facility is usually difficult to access. Some participants described their difficulties in reaching the health facilities especially when they are subjected to emergencies in the night. The first difficulty is to find a transport (a cart or a donkey) and secondly is to find the health care provider after arrival to the health facility. In such situations the doctor in charge is called from home and this may take a long time. One of the female participants described her experience with the health services when she had had renal colic and stayed in the hospital for about five hours to be examined and treated by medical assistant in charge.

- **The community involvement in establishing the health facilities:**

The community involvement in establishing, building and furnishing the health facilities was identified by the FGD participants in the rural areas rather than the urban areas. In Bara Locality, the participants identified year 1960 as the date of establishment of Bara Teaching Hospital but one of the female participants identified the names of the community members who were involved in establishing and furnishing the hospital. The participants in the rural areas could easily identify the names of the community leaders who supported the building and maintenance of the health facilities. In Sodary locality the participants identified the role of the Patient's Friends Society (PFS) in upgrading of the hospital capacity and building new wards and rooms. According to the participants' views in Sodary locality that the PFS had successfully mobilized the community resources to support the hospital but the society could not sustain its effort longer.

6.2. Affordability of the health services:

- **The perception of the health services fees:**

In the five groups all the participants perceived the health services fees as high based on their financial ability. In addition they described the situation if they do not have the money to pay, they are not allowed to enter the health facility at all. Some participants stated that they stay at home if they do not have the fees to pay for the health services. Those who fail to pay are either; go back home or they resort to borrow from some relatives or friends. Some participants were obliged to sell a camel or a donkey or their stock of Durra to cover the fees for the health services. This has resulted in increased self-diagnosis and self-medication and wide usage of native therapy as the fees of the health services represent a real barrier. The health visitor in Sodary Locality found young children using a veterinary medicine when having cough. She came to know that the drug was described for the cows and the father used it for the sick children alternatively. Some participants described their experiences with the health services:

- One female was delivered by caesarian section in Sodary Hospital and stayed in the ward for 40 days till she paid the fees.

- ❑ One of the participants told her story when she suddenly had allergic reaction and went to the hospital and was not able to pay the cost of the services (600 SD=\$2.6). The solution for her problem was to get somebody to grantee her to pay later.
- ❑ In the facility laboratory if the patient is subjected to laboratory investigation and he needs a disposable syringe he/she should pay 500 SD or otherwise no investigation.
- ❑ One of the female participants stated that she borrowed 1000 S.D to cover the fees for services but she still has to pay more.
- ❑ For emergency cases, the services are provided but the fees are to be paid later by the relatives or the accompanying persons.
- ❑ One of the participants raised the issue of variations in the fees of the services as she was informed by the doctor to pay 7000 SD for a surgical operation but soon the nurse raised the fees to 8500 SD without justified reasons.
- ❑ The participants identified the fees for services in three hospitals as follows:
 - ❖ Entry ticket: 100 SD=\$0.4
 - ❖ Examination fees for doctors: 300 SD=\$1.3
 - ❖ Examination fees for medical assistant: 100 SD=\$0.4
 - ❖ The fees for each laboratory investigation: 100 SD=\$0.4
 - ❖ The fees for the spontaneous normal delivery in the hospital: 6.000 SD=\$26.5
 - ❖ The fees for the caesarian section: 11,500 SD=\$50.9
 - ❖ The payment for the medicines varies according to the prescriptions and always expected to be higher than other costs.
 - ❖ Some participants who have had patients for surgical operations should have to pay for the surgical package containing the IV fluids, disposable syringes, gauze, needle, silk catgut, Chromic catgut, scalpel, Foley's catheter, the gloves and other items. The cost of the surgical package varies between 13,000 SD (\$57.5) and 18,000 SD (\$79.6). In addition the cost for bed occupancy should be paid which is about 11,500 SD (\$50.9). The surgical

package is either purchased from the pharmacy hospital or the community pharmacy with marked variation in the prices.

6.3. The barriers of the health services utilization:

- ❖ The participants identified the high cost of health services as the main barrier for the health services utilization. Some participants added that the cost is increased by the other expenses including food, drinking water and special diets.
- ❖ In Sodary Rural Hospital: the participants raised the issue that the outpatient clinic is converted to a private clinic after the official working hours and the patients have to pay double the examination and the laboratory investigations fees. This is perceived as a barrier for utilization of the facility services especially by the poor sectors of the community.
- ❖ For some participants the long distance between their homes and the facility is another barrier for the service utilization. This is marked for those patients referred to the rural hospitals from the primary level.
- ❖ Some participants viewed the poor care provided within the facilities as a barrier for the service utilization.

6.4. The community supporting systems:

- ❖ The participants could identify the family members, the relatives and the friends as important supporters to help the poor patients who fail to pay fees for services.
- ❖ The role of the zakat in supporting the poor patients to pay for the services was described by the participants as limited or not existing. One of the participants told the story of his grandmother who was admitted to the hospital and they failed to pay the cost of the services. They resorted to the Zakat Authority but they could not get any support. Lastly they borrowed money from some relatives/friends to pay the cost.
- ❖ The Health Insurance was not identified by most of the participants as a supporting system of importance to backup the poor patients.

Only the governmental employed participants are utilizing their health insurance cards to cover the fees services.

6. 5. Perception of the quality of health services by the users:

- ❖ Most of the participants perceived the provided services as poor despite that they have to pay for everything. Their perception is based on the following:
 - Negative attitudes of the security personnel at the doors.
 - Poor nursing care.
 - Shortage/travel/absence of the facility staff.
 - Overcrowding of the wards-occupancy of one bed by two patients.
 - Lengthy waiting time.
 - Poor laboratory services and in some rural facilities the syringes are re-used for more than one patient.
 - Poor hygiene and dirty bed-sheets.
 - Lack of water supplies within the health facilities.
 - Lack of the ambulatory services in the far rural areas.
- ❖ Considering the privacy: the participants agreed that the health care providers when examined and treated them considered their privacy.
- ❖ Few participants were criticizing the negative attitudes of the health care providers towards them.

7. Conclusion:

- The community established about 59.2% of the health facilities in North Kordofan while the government established about 29.6%.
- 75.9% of the sampled health facilities established by the government were rural while 93.1% of the health facilities established by the community were rural.
- 27.6% of the health facilities established by the government were hospitals, 24.1% were dispensaries and 10.1% were PHC units. 67.2% of the health facilities established by the communities were PHC units and only 1.7% were hospitals.
- The available source of water for about 41.8% of the health facilities was the village well, for 22.4% of the health facilities; the source was artesian well while about 1% of the facilities had no source of water.
- 53.1% of the health facilities had no source of electricity, 20.4% of the health facilities had solar cells and 12.2% had electricity from the general network.
- The ratio of the health care providers per facility in Shaikan locality was **12** providers per facility. The same ratios for the other four localities were as follows: Bara locality: **2**, Um Rwaba locality: **3**, Sodary locality: **4**, Gabrat Elsheikh **6**. This indicates that significant variations do exist in the distribution of the health cadres between the main locality and the other localities.
- The absenteeism rate among the staff of the sampled health facilities was **6.5%**.
- In 93.9% of the health facilities the staff have not yet received their last month salaries despite that they were interviewed during the second week of the next month.
- 88% of the health facilities, which the staff not yet received their salaries were rural, and 12 % were urban.
- The staff members in 90% of the sampled hospitals and the health centers have not yet received their salaries at the date of the visit (second week of the month) while the staff members in all the dressing stations have not received their salaries.

- About 50% of the sampled health facilities were either visited more than six month before the date of the interview or never visited by the supervisory team.
- 52.8% of the total budget of the health facilities last year was allocated by the State Ministry of Health, 37.6% from the users' fees, and 0.5% by the locality.
- The budget source from the State last year was available for the health facilities in two localities, namely Shaikan and Um Rwaba.
- The budget source from the locality was available only for the health facilities in Um Rwaba locality.
- Almost all the budgetary allocations from the State Ministry of Health were absorbed by the health facilities in Shaikan locality.
- The budget source from the state was received by only 3% of the health facilities in the two localities. This is indicative that the state budget allocations were absorbed mainly by a small portion of the health facilities (three health facilities) mostly hospitals in the State capital.
- The first budget release was received either at the beginning of the year or within the first three months.
- One health facility received between 10-49% of the allocated budget and two facilities received more than 90% of the allocated budget.
- Only 7.1% of the health facilities received supplies/ goods from the Federal Ministry of Health last year.
- None of the health facilities received transferred budget from the federal level last year.
- 30% of the health facilities that received supplies/goods from the federal level were hospitals, 10.5 were dispensaries and 4.3% were PHC units.
- The supplies/goods from the federal level were mainly equipment and instruments for the tertiary facilities in Bara and Um Rwaba and Shaikan localities.
- In 83.7% of the sampled health facilities, the health care provider in charge of the health facility was responsible for approval of the financial requisition within the facility.
- In all sampled health facilities, the patients have to pay for any service provided for them.

- In 57.1% of the sampled health facilities, the health care providers decided the cost of the provided service.
- In 14.3% of the sampled health facilities, the cost of the provided service was decided according to a standard list prepared by the State Ministry of Health.
- In 13% of the sampled health facilities, the cost of the provided service was decided by the facility (administrative staff and the health care providers).
- In 80.9% of the sampled health facilities that provide immunization services, the services were exempted from fees.
- In 82.9% of the health facilities that provide family planning services, the family planning services were exempted from fees.
- In 44.4% of the health facilities that provide ANC services, the services were exempted from the fees.
- The delivery services were exempted from fees in 19% of the facilities that provide delivery services.
- There were variations in exemption of services from one facility to another. The variation was marked in the ANC services as 55.6% of the health facilities that provide ANC charged fees from the attendants.
- In 54.1% of the health facilities, the exempted services were being determined according to the opinion of the health care provider in charge.
- In 36.7% of the health facilities, the exempted services were being determined according to the standard list prepared by the state authority or the head office in case of non-governmental organizations.
- In about 9% of the health facilities including private ones, the process of determining the exempted services at the facility level; was either not existing or unclear.
- In 47.9% of the health facilities, the situation for patients/clients who failed to pay, the services would be provided on credit to be paid later on. In 17.3% of the health facilities, the patients/clients who failed to pay would be exempted. In 14.3% of the health facilities, the patients/clients who failed to pay would be either on credit or exempted. In 8.1% of the health facilities, services would be provided pending that the relatives and community members would contribute. This indicates that the common practices as regards the fees for

services in the health facilities were flexible in dealing with patients who failed to pay the cost of services.

- In only 3.1% of the health facilities, no services would be provided if the patient failed to pay.
- The social supporting system remains as a limited option for supporting patients who failed to pay the cost of services. This is evidenced from the finding that in about 6% of the health facilities, the patients who failed to pay were either provided with the services or not and then referred to the social supporting system.
- Considering the health facilities in Shaikan locality: the total number of patients/clients attended last month was 16423 which is about 44.8% of the total number of the attendants of the health facilities in all localities. Only 4.1% of those attended Shaikan health facilities last month failed to pay the service fees. The social supporting system supported 23% of those patients/clients who failed to pay the service fees.
- Considering the health facilities in Um Rwaba locality: the total number of the patients/clients attended last month was 11335, which was about 30.8% of the attendants in all localities. 34.1% of those attended Um Rwaba health facilities last month failed to pay the service fees.
- On average about 14.9% of the patients/clients attended failed to pay the service fees in all the health facilities with 10% of them get supported by the social supporting system.
- In 86 (87.8%) of the health facilities, the collected users' fees were retained and managed by the facility.
- In 6 health facilities (6.1%), a specific portion of the collected fees was being retained and managed by the facility.
- In three health facilities (2 PHC units and 1 dressing station); all the collected fees were delivered to the locality.
- Three health facilities (one hospital, one health center and one PHC unit); all the collected fees were delivered to the state.
- The patients with an episode of simple malaria managed in hospitals paid a cost, which was 1.7 greater than the cost paid by patients with an episode of simple malaria managed in PHC units.

- The ANC attendants in hospitals paid a cost for the visit, which was twice the cost, paid by the ANC attendants in PHC units.
- The mean cost in Sudanese Dinnars to be paid for normal delivery at hospital was 4788.9 while the mean cost in Sudanese Dinnars to be paid for an appendicectomy operation was 14660. It was noted that significant variations do exist from one hospital to another as regards the cost of the normal delivery and the appendicectomy.
- Family planning services were provided in 24% of the sampled health facilities while in 76% of them family planning services were not provided.
- 30.4% of the health facilities that provide family services were in Shaikan locality and 26.2% of the health facilities that provide family planning services were in Um Rwaba locality. As shown in table (14); 14 out 17 of the health visitors (82.4%) were employed in the health facilities in Shaikan and Um Rwaba localities. In the health facilities in Um Rwaba locality, 9 assistant health visitors were employed and this increased the availability of family planning services.
- The mean of days per week for provision of family planning services in health facilities in Bara locality was 5.6 while in um Rwaba was 2.6. In the health facilities in Bara locality used to provide family planning services almost on daily basis despite the fact that no health visitors or assistant health visitors were ever employed in these facilities. In such health facilities other cadres were trained on family planning services, which resulted in availability and provision of family planning services on daily basis.
- In comparison to the health facilities in Um Rwaba locality, the mean of days for provision of family planning services was 3days. It has to be noted that 5 health visitors and 9 assistant health visitors were employed in all the health facilities in Um Rwaba locality but still the practice of providing family planning services on scheduled days per week was maintained.
- The study indicates that the privacy element as a an essential component of quality family planning services was considered in less than 50% of the health facilities that used to provide family planning services.

- The ANC services were available in 73.5% of the health facilities, the PNC services were available in 10.2% and the post-abortion care services were available in 11.2% of the sampled health facilities.
- 40.3% of the health facilities that provide ANC services were in Um Rwaba locality. This represents **72.5%** of the total health facilities included in the sample from um Rwaba locality (29 out of 40 health facilities). As shown in table (14) that about 5 health visitors and 9 assistant health visitors were employed in the health facilities in Um Rwaba and those cadres provide the package of safe motherhood services.
- 25% of the facilities that provide ANC services were in Bara locality, which represents about **85.7%** of the health facilities, included in the sample from Bara locality (18 out of 21 health facilities). Non of the health visitors or the assistant health visitors were employed in Bara locality but it seems that other health care providers especially at the PHC level were trained on the provision of safe motherhood services.
- Child health services were provided in 14% of the sampled health facilities while 86% of them did not provide such services on routine basis.
- The immunization services were available in 96% of the health facilities included in the sample. This indicates the wide coverage of the immunization services in North Kordofan State.
- Despite the wide coverage of immunization services, still the accessibility is questionable as less than 10% of the health facilities used to provide immunization services for the whole week.
- The total number of beds in the sampled health facilities mounted to 1667. About **37.2%** of the total beds were placed in the health facilities in Shaikan locality (Two hospitals). In Sodary locality only **3%** of the beds were placed (two hospitals). The highest mean of beds per facility was in Shaikan locality (310) and the lowest mean of beds per facility was in Sodary locality (27). The results reflect the wide disparities in availability of beds between health facilities from one locality to another.
- The mean of the admitted cases per hospital per year in Shaikan locality was 40 times the mean of the admitted cases per hospital per year in Gabrat El sheikh locality.

- The blood transfusion facilities were available in 3% of the health facilities that had an operating theatre. In 97% of the health facilities that had an operating theatre, no blood transfusion facilities were available.
- 26% of the sampled health facilities had a laboratory while 74% of the sampled health facilities had no laboratory.
- The laboratory services in the health facilities included in the sample were limited. In addition the distribution of the laboratory services showed marked inequality from the main locality to the other underserved localities.
- 24% of the health facilities had a pharmacy while 76% of them had no pharmacies.
- In 69% of the health facilities, the drugs supplies were procured regularly while in 31% of them; the drugs supplies were not procured regularly.
- The drugs supplies were procured regularly for 90% of the hospitals, 73.7% of the dispensaries and 72.7% of the health centers. The drugs supplies were procured regularly for lesser percentage of PHC units (65.2%) and dressing stations (58.3%). The drugs supplies were procured regularly to the tertiary health facilities rather than the primary health care facilities.
- The overall mean number of drugs prescribed per outpatient visit was 2 while the mean for the hospital was 3. The mean number of drugs prescribed per outpatient visit was 2 for the other health facilities.
- The mean cost per prescription in Sudanese Dinnars for the hospitals was found to be 1464.5, which was about thrice the cost per prescription for the health center and twice the cost per prescription for the PHC unit.
- The average number of items available in the pharmacy was 107 in the hospitals, which was twice the items available in the health center (48). The average number of items available in the dressing station (21), the dispensary (22) and the PHC unit (18) which was about half of those items available in the health centers.
- The list of the essential drugs was commonly used in the hospitals and the health centers than the primary health care facilities.

8. Recommendations:

1. Effective strategic approaches for strengthening and expansion of the community participation especially at the PHC level are to be developed and implemented.
2. It is necessary to extend the community participation to address the running and maintenance of the existing health facilities rather than establishing the buildings.
3. Strengthening the roles of the community supporting groups and societies (Patients' Friends society) to mobilize and manage the available resources for health.
4. Improvement in the physical environment of the health facilities in North Kordofan is necessary i.e. electricity and water supplies for those health facilities currently without supplies.
5. A comprehensive strategy for the health manpower development with emphasis on re-distribution of the available manpower favoring the underserved localities in North Kordofan has to be developed by the State Ministry of Health.
6. Strengthening of the existing staff salary system to ensure the timely delivery of the salaries especially in the rural health facilities.
7. Activation of the technical and administrative supervisory system aiming to motivate and support the overall performance of the staff.
8. Effective mechanisms for central pooling of the fees for services within the State Ministry of Health and re-distribution of the budgetary allocations based on the actual needs of the health facilities.
9. Quarterly budgetary release system from the state Ministry of health with effective monitoring and auditing mechanisms is suggested to ensure better financial performance.
10. It is necessary to advocate among the senior executive and planning officers at both the federal and state level about the importance of sufficient budgets to sustain the transfer of budgets in support of health services.
11. It is important to mobilize the concerned budget health staff at the state level to collect the earmarked health budgets to ensure that the earmarked budgets for health are transferred to their respective state.

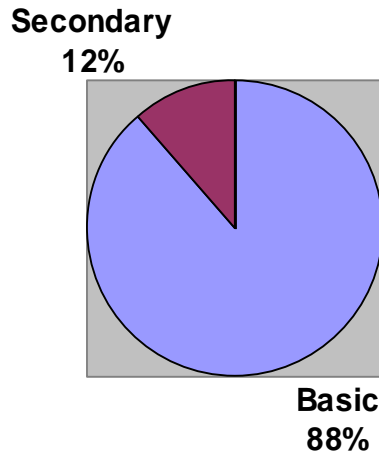
12. It is necessary to advocate among the senior officers of the vertical programs at the federal level to increase the supplies/goods based on the needs of the health facilities especially at the primary level.
13. The health care providers in charge of the health facilities have to be trained on the basic principles of financial management, budgetary rules to improve their performance.
14. A standard list of the prices, cost of health services and the exempted services has to be developed and finalized by the concerned body at the state level.
15. Distribution of the final list of the prices, cost of health services and exempted services to all health care providers with regular follow up to ensure usage at all levels.
16. It is important to advocate among the executive authority of the social supporting systems at different level to strengthen the mechanisms of support for the patients/clients who fail to pay for the health services especially at the rural health facilities.
17. It is of utmost importance to advocate among the executive authority of the Health Insurance Scheme to expand their services to cover the poor sectors of the rural communities.
18. Establishment of an efficient pooling system for all the collected users' fees at the facility level to be delivered to the concerned body at the state Ministry of Health. This is expected to facilitate the fair and equitable distribution of the available financial resources.
19. Development and operationalization of the RH service standards to address quality issues within the provided RH services.
20. In-service training of all health care providers on RH service standards to ensure availability and provision of services on daily basis and in all health facilities.
21. Renovation of the health visitors' school in El Obaed City to increase the number of health visitors needed for provision of the safe motherhood services.
22. It is advised that an evaluative study has to be conducted to assess the performance of assistant health visitors and to find out the possibility of expanding the training of such cadres to cover the safe motherhood services.
23. Strengthening of the delivery system to ensure accessibility of the immunization services on daily basis especially at the PHC level.

24. Upgrading of the rural hospitals through availing extra human, physical and financial resources to act efficiently as a first referral level in support of the PHC facilities.
25. Blood transfusion units are to be established to cover 100% of the tertiary health facilities with surgical theatres.
26. Expansion of the laboratory services to cover the underserved areas through establishment of satellite laboratory units to serve reasonable number of health facilities.
27. Motivation of the private sector to invest in establishment of the satellite laboratories to increase coverage and to ensure quality.
28. Strengthening of the drug supply system at the state level to ensure regular delivery of drugs to the PHC facilities.
29. Distribution of the essential list of drugs to be used by the health care providers at the PHC level.

SCHOOL SURVEY RESULTS

9. Basic characteristics of the sampled schools:

Figure (1): Distribution of the sampled schools by level



88% of the sampled schools were basic while 12% were secondary.

Table (1): Distribution of the sampled schools by type

<i>School type</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Boys</i>	Count	39	8	47
	%	40.6%	8.3	49
<i>Girls</i>	Count	35	3	38
	%	36.5	3.1	39.6
<i>Co-education</i>	Count	11	0	11
	%	11.5	0	11.5
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

88.5% of the schools included in the sample were basic while 11.5% of them were secondary. Co-education schools represent about 11.5%, boy's schools were 40.6% and girl's schools were 36.5% of the basic schools included in the sample. Boys' schools were 49% and girls' schools were 39.6% of the secondary schools included in the sample.

Table (2): Distribution of the sampled schools by locality

<i>Locality</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Shaikan</i>	Count	27	3	30
	%	28.1%	3.1	31.3
<i>Bara</i>	Count	15	2	17
	%	15.6	2.1	17.7
<i>Gabrat Elsheikh</i>	Count	6	1	7
	%	6.3	1	7.3
<i>Sodary</i>	Count	5	1	6
	%	5.2	1	6.3
<i>Um Rwaba</i>	Count	32	4	36
	%	33.2	4.2	37.5
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

37.5% of the sampled schools were located in um Rwaba locality while 31.3% of them were located in Shaikan locality. 17.7%, 7.3% and 6,3% of the sampled schools were located in Bara, Gabrat El Sheikh and Sodary localities respectively. As the sample size was drawn proportional to size, the bulk of schools were in Bara and Shaikan localities.

Table (3): Distribution of the sampled schools by gender of the respondent:

<i>Gender of the respondent</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Male</i>	Count	48	9	57
	%	50	9.4	59.4
<i>Female</i>	Count	37	2	39
	%	38.5	2.1	40.9
<i>Total</i>	Count	85	11	96
	%	88.5	11.9	100

The respondents in 50% of the basic schools and 9.4% of the secondary schools were males. The respondents in 38.5% of the basic schools and 2.1% of the secondary schools were females. The males were occupying the leading jobs as directors in the sampled schools.

Table (4): Distribution of the sampled schools by job of the respondents:

<i>Job of the respondent</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Directors</i>	Count	74	9	83
	%	77.1	9.4	86.5
<i>Others</i>	Count	11	2	13
	%	11.5	2.1	13.5
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

The respondents in 77.1% of the basic schools and 9.4% of the secondary schools were the school directors.

Table (5): Distribution of the schools according to the body established the school:

<i>The body established the school</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Government</i>	Count	39	8	47
	%	40.6	8.3	49
<i>NGOs</i>	Count	2	0	2
	%	2.1	0	2.1
<i>Private</i>	Count	1	0	1
	%	1	0	1
<i>Community</i>	Count	27	2	29
	%	28.1	2.1	30.2
<i>Others</i>	Count	16	1	17
	%	16.1	1	17.1
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

The government established 40.6% of the sampled basic schools and 8.3% of the secondary schools. The government established around 50% of both basic and secondary schools. The community established 28.1% of the sampled basic schools and 2.1% of the secondary schools. Thus the community established about 30.2% of both the basic and secondary schools. This is indicative that community participation was deeply rooted in North Kordofan State. Both the government and the community established 80% of the sampled basic and secondary schools. Thus the major bodies established the sampled schools were the government and the community. On the other hand the role of the NGOs and the private sector was obviously limited in establishing schools as they established only 3% of the sampled schools. Other bodies

established schools included government and the community or government, community and NGO, which pointed to the existing partnership between the various bodies involved in establishing schools in North Kordofan.

Table (6): Distribution of the schools according to the date of establishment:

<i>Date of establishment</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Less than 10 years</i>	Count	2	0	2
	%	2.1	0	2.1
<i>10-20 years</i>	Count	17	1	18
	%	17.7	1	18.8
<i>More than 20 years</i>	Count	66	10	76
	%	68.8	10.4	79.2
<i>Total</i>	Count	85	11	95
	%	88.5	11.5	100

68.8% of the sampled basic schools and 10.4% of the sampled secondary schools were established more than 20 years back. About 79.2% both basic and secondary schools were established more than 20 years back. 18.8% of both basic and secondary schools were established at a date 10-20 years back while 2.1% of the schools were established at a date less than 10 years. Conclusively the vast majority of the schools were old established rather than newly established.

Table (7): Distribution of the schools according to the catchment population served by school:

<i>Catchment population</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Less than 1000</i>	Count	5	0	5
	%	5.2	0	5.2
<i>1000-4999</i>	Count	43	4	47
	%	44.8	4.2	49
<i>5000-9999</i>	Count	25	1	26
	%	26	1	27
<i>10000-14999</i>	Count	6	0	6
	%	6.3	0	6.3
<i>More than 15000</i>	Count	6	6	12
	%	6.3	6.3	12.5
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

The catchment population served by 49% of the sampled schools ranged between 1000-4999. The catchment population served by 27% of the sampled schools ranged

between 5000-9999. The catchment population served by 12.5% of the sampled schools was more than 15000 while the catchment population served by 5.2% of the sampled schools was less than 1000.

Table (8): The distribution of the schools according to the catchment area served by the school:

<i>The catchment area</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>Two villages</i>	Count	2	0	2
	%	2.1	0	2.1
<i>Three and more villages</i>	Count	59	4	63
	%	61.5	4.2	65.6
<i>Difficult to identify</i>	Count	24	7	31
	%	25	7.3	32.3
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

The number of villages served by 65.6% of the sampled schools was three and more while it was difficult to identify the number of villages served by 32.3% of the sampled schools.

Table (9): Distribution of schools by number of pupils:

<i>Number of pupils</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>110-476</i>	Count	55	10	65
	%	57.3	10.4	67.5
<i>477-832</i>	Count	23	1	24
	%	24	1	25
<i>833-1188</i>	Count	7	0	7
	%	7.3	0	7.3
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

The number of pupils ranged between 110-476 in 67.6% of the sampled schools. While the number of pupils ranged between 477-832 in 25% of the sampled schools. In 7.3% of the sampled schools, the number of pupils ranged between 833-1188.

Table (10): Total number of pupils and seats in the sampled schools:

<i>Measures</i>	<i>Level of the school</i>			
	Basic		Secondary	
	Number of pupils	Number of seats	Number of pupils	Number of seats
<i>Sum</i>	38761	14468	3442	3181
<i>Maximum</i>	1188	924	589	620
<i>Minimum</i>	174	30	119	87
<i>Mean</i>	456	172	313	289
<i>Mode</i>	437	100	320	67

The indicators for seating pupils of the sampled basic schools:

- The total pupil per seat ratio: 3:1
- The maximum pupil per seat ratio: 1:1
- The minimum pupil per seat ratio: 6:1
- The mean number of pupils per school was 456.
- The mean number of seats per school was 172

The above indicators demonstrated that pupil seating was one of the main problem as for every three pupils, there was only one seat. Thus two pupils out of three should sit on the floor to study. In addition there were variations from one school to another indicating that in some schools, more than three pupils might be sharing one seat.

The indicators for seating pupils of the sampled secondary schools:

- The total pupil per seat ratio: 1:1
- The maximum pupil per seat ratio: 1:1
- The minimum pupil per seat ratio: 2:1
- The mean number of pupils per school was 313
- The mean number of seats per school was 289

The seating indicators for the sampled secondary schools were better in comparison to the seating indicators for the sampled basic schools. The total indicator was one seat for each pupil while the minimum indicator was one seat for every two pupils.

Table (11): Categorization of the pupils in the classes of the sampled basic schools:

<i>Class</i>	<i>Beginning of the year</i>				<i>Today</i>		
	Promoters	Repeaters	Transferred from	Transferred to	School leavers	Total	Absentees
<i>1</i>	6139	277	66	98	268	6132	147
<i>2</i>	5566	285	66	112	157	5762	145
<i>3</i>	5033	347	46	111	125	5347	130
<i>4</i>	5166	499	33	133	133	5574	116
<i>5</i>	4582	427	40	108	123	4959	122
<i>6</i>	3940	333	26	136	109	4131	87
<i>7</i>	3333	337	38	108	105	3622	69
<i>8</i>	2860	66	35	90	141	2875	33
<i>Total</i>	36619	2571	350	896	1161	38402	849

Referring to the above table (11): The following indicators could be measured:

- The drop out rate in grade (1): 4.4% which was the maximum drop out rate
- The drop out rate in grade (7): 2.8% which was the minimum drop out rate
- The overall drop out rate in the sampled basic schools was: 3%.

The overall drop out rate was high in the sampled basic schools and this might be related to many causes such as failure to pay the school fees by the poor families. Some poor families who have many children tend to pay for one or two and then the others should leave the school to work and support their family. Other causes such as extra expenses for transport and food and location of the school might be responsible for school leaving by some pupils.

- The repetition rate in grade (4): 9%, which was the maximum repetition rate.
- The repetition rate in grade (8): 2.3%, which was the minimum repetition rate.
- The overall repetition rate in the sampled basic schools: 6.7%.
- The absenteeism rate in grade (1): 2.4%, which was the maximum absenteeism rate.

- The absenteeism rate in grade (8): 1.1%, which was the minimum absenteeism rate.
- The overall absenteeism rate in the sampled basic schools was 2.2%.

Table (12): Categorization of the pupils in classes of the sampled secondary schools:

<i>Class</i>	<i>Beginning of the year</i>					<i>Today</i>	
	Promoters	Repeaters	Transferred from	Transferred to	School leavers	Total	Absentees
<i>1</i>	1528	-	84	61	62	1454	31
<i>2</i>	1215	11	16	5	103	1110	33
<i>3</i>	879	54	19	-	36	878	23
Total	3622	65	119	66	201	3442	87

Referring to table (12): the following indicators for the secondary schools could be measured:

- The drop out rate in grade (1): 4.3%.
- The drop out rate in grade (2): 9.3%, which was the maximum drop out rate.
- The drop out rate in grade (3): 4.1%, which was the minimum drop out rate.
- The overall drop out rate in the sampled secondary schools was 5.8%. It was noted that the overall drop out rate in the sampled secondary schools was higher in comparison to the overall drop out rate in the sampled basic schools (3%).
- The repetition rate in grade (1): was zero.
- The repetition rate in grade (2): 1%
- The repetition rate in grade (3): 6.2%
- The repetition rate in the sampled secondary schools was 5.8%. It was noted that the overall repetition rate in the sampled secondary schools was lesser in comparison to the overall repetition rate in the sampled basic school (6.7%).
- The absenteeism rate in grade (1): 2.1%, which was the minimum absenteeism rate.
- The absenteeism rate in grade (2): 3%, which was the maximum absenteeism rate.

- The absenteeism rate in grade (3): 2.3%
- The overall absenteeism rate in the sampled secondary schools was 2.5%, which, was higher in comparison to the absenteeism rate in the sampled basic schools (2.2%).

Table (13): Distribution of the sampled schools by presence/absence of a fence:

<i>Level of the school</i>		<i>Fence of the school</i>		<i>Total</i>
		Yes	No	
<i>Basic</i>	Count	55	30	85
	%	57.3%	31.3	88.5
<i>Secondary</i>	Count	5	6	11
	%	5.2	6.3	11.5
<i>Total</i>	Count	60	36	96
	%	62.6	37.5	100

62.6% of the sampled basic and secondary schools were surrounded with a fence while 37.55 of them were without a fence. The presence of a school fence is important for safety and integrity of the physical school environment.

Table (14): Distribution of the fenced schools by type:

<i>Type of the school</i>		<i>Fence of the school</i>		<i>Total</i>
		Yes	No	
<i>Boys</i>	Count	24	23	47
	%	25	24	49
<i>Girls</i>	Count	28	10	38
	%	29.2	10.4	39.6
<i>Co-education</i>	Count	8	3	11
	%	8.3	3.1	11.5
<i>Total</i>	Count	60	36	96
	%	62.5	37.5	100

25% of the fenced schools were boys' schools while 29.2% of the fenced schools were girl's schools.

Table (15): Distribution of the schools according to the number of rooms:

<i>Level of the school</i>		<i>Number of rooms</i>		<i>Total</i>
		6-10	More than 10	
<i>Basic</i>	Count	18	65	85
	%	18.8	67.7	88.5
<i>Secondary</i>	Count	2	9	11
	%	2.1	9.4	11.5
<i>Total</i>	Count	20	74	96
	%	20.8	77.1	100

77.1% of the sampled schools were composed of more than 10 rooms while 20.8% of them were composed of 6-10 rooms.

Table (16): Number of rooms by type of the school

<i>Type of the school</i>		<i>Number of rooms</i>		<i>Total</i>
		6-10	More than 10	
<i>Boys</i>	Count	8	39	47
	%	8.3	40.6	49
<i>Girls</i>	Count	8	28	38
	%	8.3	29.2	39.6
<i>Co-education</i>	Count	4	7	11
	%	4.2	7.3	11.5
<i>Total</i>	Count	20	74	96
	%	20.8	77.1	100

40.6% of the sampled schools with more than 10 rooms were for boys while 29.2% of the sampled schools with more than 10 rooms were for girls. Only 7.3% of the sampled schools with more than 10 rooms were for co-education schools. Boys' schools tend to have large number of rooms.

Table (17): Summary of the types of the rooms in the sampled basic schools

<i>Type</i>	<i>Total</i>	<i>Maximum</i>	<i>Mean</i>	<i>Minimum</i>
<i>Class</i>	742	16	9	4
<i>Office</i>	182	6	2	1
<i>Laboratory</i>	-	-	-	-
<i>Music room</i>	52	3	1	1
<i>Store room</i>	-	-	-	-
<i>Library</i>	4	2	2	2
<i>Latrines</i>	229	12	4	1
<i>Others</i>	14	1	1	1

The total number of the classes in the sampled basic schools was **742** with a mean of **9** classes per school. Provided that the total number of the pupils in the sampled basic schools as shown in table (11) was 38402: the pupil per class ratio was: **52** pupil per class. This is indicative of some crowdedness in the classes.

The total number of the latrines in the sampled basic schools was **229** with a mean of **2** latrines per school and a ratio of **167** pupils per latrine. This is indicative of the marked shortage in the number of latrines available for usage by the pupils.

According to the standard of one latrine for each 20 persons then the actual number of the latrine in the sampled basic schools should mount to **1920**. It is clear that the number of latrines is inadequate in the sampled basic schools and this might negatively affect the hygienic practices of the pupils.

There were **52** music rooms with a mean of 1 music room per school. Nevertheless there were many basic schools, which did not have a music room. There were 4 schools with a library with a mean of 2. This is indicative that very few sampled basic schools had a library (only 4.7%). None of the sampled basic schools had a laboratory or a storeroom.

Table (18): Summary of the types of the rooms in the sampled secondary schools

<i>Type</i>	<i>Total</i>	<i>Maximum</i>	<i>Mean</i>	<i>Minimum</i>
<i>Class</i>	82	14	7	3
<i>Office</i>	45	10	4	2
<i>Laboratory</i>	8	2	1	1
<i>Music room</i>	13	3	2	1
<i>Store room</i>	-	-	-	-
<i>Library</i>	2	1	1	1
<i>Latrines</i>	60	15	8	2
<i>Others</i>	30	9	5	2

The total number of the classes in the sampled secondary schools was **82** with a mean of **7**. Provided that the total number of the pupils in the sampled secondary schools as shown in table (11) was 3442: the pupil per class ratio was: **42** pupil per class. This is indicative that the sampled secondary schools were less crowded in comparison to the sampled basic school with a ratio of 52 pupils per class. The total number of the latrines in the sampled secondary schools was **60** with a mean of **8** latrines per school with a ratio of **57** pupils per latrine. This is indicative of the shortage in the number of latrines available for usage by the pupils. However the shortage is less severe than the shortage of the latrines in the sampled basic schools. According to the standard of one latrine for each 20 persons then the actual number of the latrine in the sampled secondary schools should be tripled to mount **172** latrines.

There were 13 music rooms in the sampled secondary schools with a mean of 2 music rooms per school. There were 8 laboratories with a mean of 1 laboratory per school. Still about one third of the sampled secondary schools were without any laboratory. There were 2 libraries in the in the sampled secondary schools with a mean of 1 library per school. About 82% of the sampled secondary schools were without a library. None of the sampled secondary schools had a storeroom.

Table (19): Distribution of the offices with the level of the sampled schools:

<i>Number of offices</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>1</i>	17	18.1	0	0	17	18.1
<i>2</i>	41	43.6	3	3.2	44	46.8
<i>3</i>	20	21.3	3	3.2	23	24.5
<i>4</i>	3	3.2	1	1.1	4	4.3
<i>5 and more</i>	2	2.2	4	4.3	6	6.4
<i>Total</i>	83	88.3	11	11.7	94	100

46.8% of the sampled basic and secondary schools had two offices while 24.3% of them had three offices. Only 6.4% of the sampled basic and secondary schools had five and more offices.

Table (20): Distribution of the latrines with the level of the school:

<i>Number of latrines</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% Of total
	Count	%	Count	%		
<i>1</i>	9	13.2	0	0	9	13.2
<i>2</i>	14	20.6	1	1.5	15	22.1
<i>3</i>	8	11.8	0	0	8	11.8
<i>4</i>	8	11.8	2	2.9	10	10.4
<i>5</i>	6	8.8	1	1.5	7	10.3
<i>6</i>	8	11.8	0	0	8	11.8
<i>7 and more</i>	7	10.2	4	6	11	16.2
<i>Total</i>	60	88.2	8	11.8	68	100

22.1% of the sampled basic and secondary schools had two latrines, 16.2% had had 7 latrines and more and 13.2% had one latrine. Provided that the mean number of pupils per basic school was 452, the number of latrines is expected to be on average 21.

None of the sampled basic school had such number of latrines. Provided the mean

number of pupils per secondary school was 313, the number of latrines is expected to be 16 per school. Only one secondary school was found to have 15 latrines.

Table (21): Distribution of schools according to the available source of water

<i>Number of offices</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>General water network</i>	46	47.9	5	5.2	51	53.1
<i>Village well</i>	13	13.5	0	0	13	13.5
<i>School well</i>	1	1	1	1	2	2.1
<i>Hafeer</i>	5	5.2	1	1	6	6.3
<i>Hand pump</i>	11	11.5	4	4.2	15	15.6
<i>Non</i>	9	9.4	0	0	9	9.3
<i>Total</i>	85	88.5	11	11.5	96	100

53.5% of the sampled basic and secondary schools had water supply from the general water network, 15.6% had their water from a hand pump and 13.55 had their water from the village well. 9.3% of the sampled schools had no water supply from any source.

Table (22): The distribution of the schools according to availability of water on the date of the visit:

<i>Level of school</i>		<i>Availability of source</i>		<i>Total</i>
		Yes	No	
<i>Basic</i>	Count	64	21	85
	%	66.7	21.9	88.5
<i>Secondary</i>	Count	9	2	11
	%	9.4	2.1	11.5
<i>Total</i>	Count	73	23	96
	%	76	24	100

The source of water was available on the date of visit in 76% of the sampled basic and secondary schools. In 24% of the sampled schools, the source of water was not available on the date of visit. As shown in table (21) that only 9.3% of the sampled schools had no water supply from any source; there were about 15% of those schools

with source of water, which had no water supply on the date of visit. This is indicative of irregularity of the availability of source of water for technical or other reasons.

Table (23): Distribution of schools according to the available source of electricity

<i>Number of offices</i>	<i>Level of the school</i>				<i>Total</i>	
	<i>Basic</i>		<i>Secondary</i>		<i>Count</i>	<i>% of total</i>
	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>		
<i>General network</i>	27	28.1	5	5.2	32	33.3
<i>Facility generator</i>	0	0	2	2.1	2	2.1
<i>Village generator</i>	4	4.2	0	0	4	4.2
<i>Solar cell</i>	6	6.3	4	4.2	10	10.4
<i>Non</i>	48	50	0	0	48	50
<i>Total</i>	85	85.5	11	11.5	96	100

50% of the sampled schools had no source of electricity. 33.3% of the sampled schools had their electricity from the general network. 10% of the health facilities used the solar cells as a source of electricity.

Table (23): Distribution of schools according to availability of source of electricity on date of visit:

<i>Level of school</i>		<i>Availability of source</i>		<i>Total</i>
		<i>Yes</i>	<i>No</i>	
<i>Basic</i>	<i>Count</i>	31	54	85
	<i>%</i>	32.3	56.2	88.5
<i>Secondary</i>	<i>Count</i>	10	1	11
	<i>%</i>	10.4	1	11.5
<i>Total</i>	<i>Count</i>	41	55	96
	<i>%</i>	42.7	57.3	100

57.3% of the sampled schools had no electricity on the date of the visit. This is explained by the fact that some schools were suffering from the irregularity of the electricity supply.

Table (24): Summary of the actual hours of school operation

<i>Measures</i>	<i>Level of school</i>	
	Basic Hours	Secondary Hours
<i>Sum</i>	629	98
<i>Maximum</i>	12	14
<i>Minimum</i>	2	6
<i>Mean</i>	7	9

The mean of hours of school operation was found to be 7 hours/day for the basic schools with a range of operation hours 2-12. The mean of hours of school operation was found to be 9/day hours for the secondary school with a range of operation of 6-14. The sampled secondary schools used to have lengthy operation hours in comparison to the sampled basic school.

10. Staff information:

Table (25): Summary of the current teaching staff in the sampled schools

<i>Measures</i>	<i>Level of school</i>	
	Basic Teaching staff	Secondary Teaching staff
<i>Sum</i>	1274	225
<i>Maximum</i>	32	48
<i>Minimum</i>	5	8
<i>Mean</i>	15	20

The total number of the current teaching staff in the sampled basic schools mounted to 1274 with a mean of 15 teaching staff per school. There were marked variations in staffing of the basic schools as shown by the wide range of staff per school ranging from 5 up to 32. The total number of the current teaching staff in the sampled secondary schools mounted to 225 with a mean of 20 staff per school. The variations in staffing of the secondary schools were wider than the basic schools as the range of staff per school was from 8 up to 48.

Table (26): Summary of the pupil per teacher ratio

<i>Measures</i>	<i>Level of school</i>	
	Basic	Secondary
<i>Sum</i>	2716	186
<i>Maximum</i>	89	30
<i>Minimum</i>	9	10
<i>Mean</i>	32	17

The mean pupil per teacher ratio in the sampled basic schools was **32** with a range of 9 up to 89. This reflects the marked variations in staffing of the basic schools. As some of the sampled basic schools were well staffed while others were poorly staffed. The mean pupil per teacher ratio for the sampled secondary schools was **17** with a

range of 10 up to 30. The staffing of the sampled secondary schools showed variations but to a lesser extent comparing to the sampled basic schools.

Table 27: Categories of the permanent staff of the sampled schools:

<i>Level of the school</i>		<i>Sum</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Mean</i>
Basic	Class teacher	284	11	1	3
	Subject teacher	803	24	1	10
	Specialized teacher	170	12	1	4
	Others	30	11	1	3
	Subject teacher	92	29	8	18
	Secondary	Specialized teacher	96	26	3	12
Others		37	22	1	7

In the sampled basic schools:

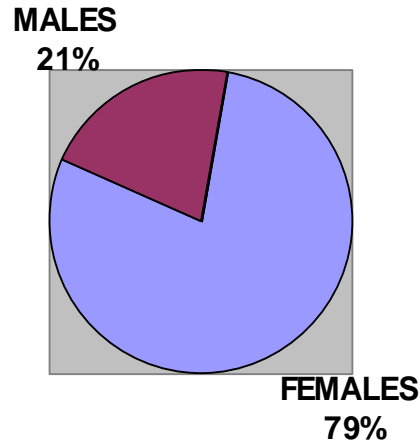
- The total number of the class teacher mounted to 284
- The mean was 3 class teachers per school
- The ratio of class teacher per pupil: 1per 135 pupils.
- The total number of the subject teachers mounted to 803
- The mean was 10 subject teachers per school.
- The ratio of subject teacher per pupil: 1 per 48 pupils.
- The total number of specialized teachers mounted to 170.
- The mean was 4 specialized teachers per school.
- The ratio of specialized teacher per pupil: 1 per 226 pupils.

In the sampled secondary schools:

- The total number of the subject teachers mounted to 92.
- The mean was 18 subject teachers per school.
- The ratio of the subject teacher per pupil: 1 per 37 pupils.

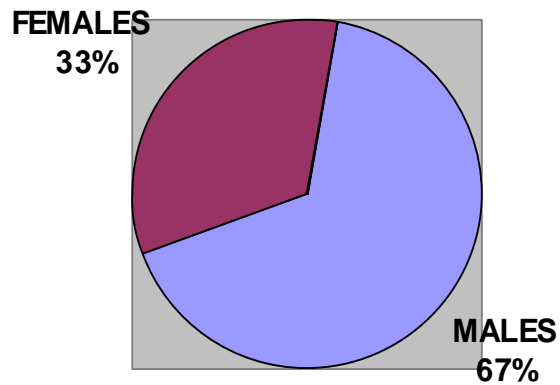
- The total number of specialized teachers mounted to 96.
- The mean was 12 teachers per school.
- The ratio of specialized teacher per pupil was: 1-per36 pupils.

Figure (11): Distribution of the sampled basic schools teachers by sex:



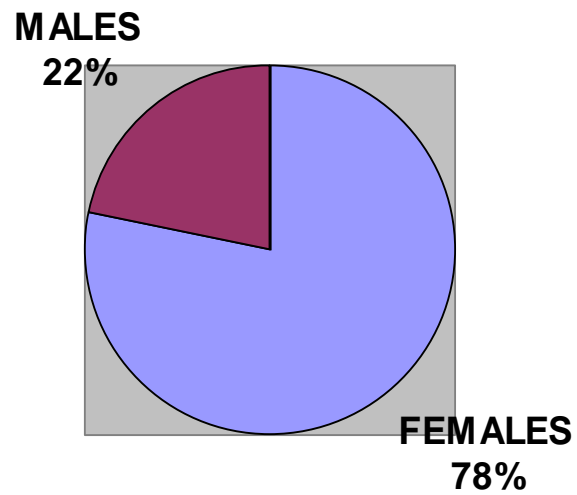
The female teachers in the sampled basic schools were 79% of the while the male teachers were 21% of the total schoolteachers.. The vast majority of the schoolteachers in both the girls and boys basic schools were females. It was noted that the absenteeism rate among the schoolteachers in the sampled basic schools was 9.9%.

Figure (111): Distribution of the sampled secondary schools teachers by sex



The male teachers were 67% in the sampled secondary schools while the female teachers were 33% of the total schoolteachers. The male teachers represented about two thirds of the schoolteachers in the sampled secondary schools. It was noted that the absenteeism rate among the schoolteachers in the sampled secondary schools was 2.1%. This absenteeism rate is much lower in comparison to the absenteeism rate among the schoolteachers in the sampled basic schools.

Figure (1V): Distribution of the absent teachers in the sampled basic schools by sex:



78% of the absentees in the sampled basic schools were females while 22% of the absentees were males.

Table (28): Distribution of the schools by the date of receiving of the last month salary:

<i>Date of receiving last month salary</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>Before the end of the month</i>	8	8.3	1	1	9	9.4
<i>Not yet received</i>	69	71.9	10	10.4	79	82.3
<i>Within one week after the end of the month</i>	8	8.3	0	0	8	8.3
<i>Total</i>	85	88.5	11	11.4	96	100

In 82.3% of the sampled schools, the staff have not yet received their last month salaries despite that the visit was carried in the second week of the next month. In Only 9.4% of the sampled schools, the staff received their last month salaries before the end of the month. In 8.3% of the sampled schools, the staff received their last month salaries within one week after the end of the month. This is indicative of the delay in receiving the salaries by the staff in the sampled school.

Table (29): Distribution of the sampled schools by the percentage of the staff received training in the last two years:

<i>Staff received training in the last two years</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>Non</i>	17	17.7	1	1	18	18.8
<i>1-5</i>	29	30.2	6	6.3	35	36.4
<i>More than 5</i>	39	40.6	4	4.2	43	44.8
<i>Total</i>	85	88.5	11	11.5	96	100

In 44.8% of the sampled schools, more the 5 of the staff received training during the last two years. In 36.4 of the sampled schools, between 1 –5 staff received training in the last two years. In 18.8 of the sampled schools, none of the staff received training in the last two years. It seems that the in-service training is well organized to upgrade the capability of the school staff.

Table (30): Distribution of the sampled schools according to the date of the last technical supervisory visit:

<i>Date of the last technical supervisory visit</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>Within the last month</i>	31	32.3	3	3.1	34	35.4
<i>Within the last three months</i>	42	43.8	1	1	43	44.8
<i>Within the last six month</i>	7	7.3	3	3.1	10	10.4
<i>More than six month.</i>	2	2.1	2	2.1	4	4.2
<i>Not conducted.</i>	3	3.1	2	2.1	5	5.2
<i>Total</i>	85	88.5	11	11.5	96	100

44.8% of the sampled schools were visited by the technical supervisory team within the last three months and 35.4% of them were visited within the last month. For 5.2% of the sampled schools, the technical supervisory visit was not conducted for more than one year back from the date of the visit. The frequency of the technical supervisory visits was quite reasonable for about 80% of the sampled schools.

Table (31): Summary of the number of the members of the technical supervisory team and the hours spent by the team:

<i>Measures</i>	<i>Level of school</i>			
	Basic		Secondary	
	NO. Of team members conducted the last visit	NO. Of hours per last visit	NO. Of the team members conducted the last visit	NO. Of hours per last visit
<i>Sum</i>	423	884	55	68
<i>Maximum</i>	10	64	10	15
<i>Minimum</i>	1	1	4	4
<i>Mean</i>	5	11	6	8

The total number of the members of the technical supervisory team conducted the last visit for the sampled basic schools were 423 with a mean of 5 members per school.

The total number of hours spent by the technical supervisory team per last visit in the sampled basic schools was 884 with a mean of 11 hours per school.

The total number of the members of the technical supervisory team conducted the last visit for the sampled secondary school was 55 with a mean of 6 members per school.

The total number of hours spent by the technical supervisory team per last visit in the sampled secondary schools was 69 hours with a mean of 8 hours per school.

Table (32): The magnitude of the technical supervision during last year:

<i>Magnitude of coverage</i>		<i>Level of school</i>		<i>Total</i>
		Basic	Secondary	
<i>All the subjects</i>	Count	78	5	84
	%	83	6.4	89.4
<i>Half of the subjects</i>	Count	2	2	4
	%	2.1	2.1	4.2
<i>Less than half of the subjects</i>	Count	5	0	5
	%	5.3	0	5.3
<i>Total</i>	Count	85	9	94
	%	90.4	9.6	100

In 89.4% of the sampled schools, the technical supervision covered all the subjects. In 4.2% of the sampled schools, the technical supervision covered half of the subjects while in 5.3%; the technical supervision covered less than half of the subjects. The magnitude of technical supervision coverage was high for the sampled schools.

Table (33): Distribution of the sampled schools according to the date of the last administrative supervisory visit:

<i>Date of the last administrative supervisory visit</i>	<i>Level of the school</i>				<i>Total</i>	
	Basic		Secondary		Count	% of total
	Count	%	Count	%		
<i>Within the last month</i>	58	61.7	1	1.1	59	62.8
<i>Within the last three months</i>	18	19.1	0	0	18	19.1
<i>Within the last six month</i>	3	3.2	2	2.1	5	5.3
<i>More than six month.</i>	1	1.1	1	1.1	2	2.1
<i>Not conducted.</i>	5	5.3	5	5.3	10	10.6
<i>Total</i>	85	90.4	9	9.6	94	100

In 62.8% of the sampled schools, the last administrative supervisory visit was conducted within the last month. In 19.1% of the sampled schools, the last administrative supervisory visit was conducted within the last three months. In 10.6% of the sampled schools, the last supervisory visit was not conducted for more than one year back from the date of the visit. The frequency of the administrative supervisory visits was quite reasonable for more than 80% of the sampled schools. However the percentage of the schools not visited by the administrative supervisory team (10.6%) was higher in comparison to the percentage of the sampled schools not visited by the technical supervisory team (5.2%).

Table (34): Summary of the number of the members of the administrative supervisory team and the hours spent by the team:

<i>Measures</i>	<i>Level of school</i>			
	Basic		Secondary	
	NO. Of team members conducted the last visit	NO. Of hours per last visit	NO. Of the team members conducted the last visit	NO. Of hours per last visit
<i>Sum</i>	169	206	8	25
<i>Maximum</i>	8	8	3	8
<i>Minimum</i>	1	1	1	2
<i>Mean</i>	2	3	2	6

The total number of the team members conducted the last administrative supervisory visit for the sampled basic schools was 169 with a mean of 2 members per school.

The total number of hours spent per last administrative supervisory visit for the basic school was 206 with an average of 3 hours per school.

The total number of the team members conducted the last administrative supervisory visit for the sampled secondary school was 8 with a mean of 2 members per school.

The total number of hours spent by per last administrative visit was 25 with a mean of 6 hours per school.

11. Financing of the school:

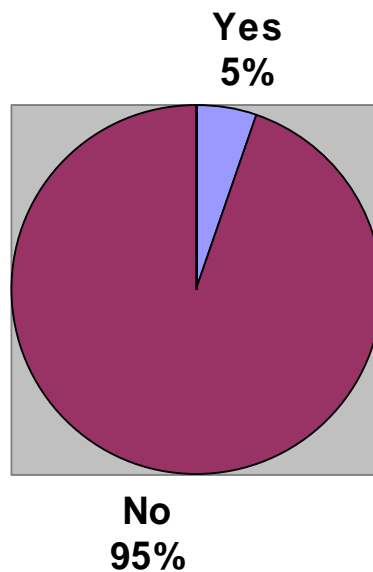
Table (35): The distribution of the sampled schools according to the main financial sources:

<i>Financial sources</i>		<i>Level of school</i>		<i>Total</i>
		Basic	Secondary	
<i>Budget from the state</i>	Count	0	0	0
	%	0	0	0
<i>Budget from the locality</i>	Count	1	0	1
	%	1	0	1
<i>Pupil's fees</i>	Count	46	7	53.
	%	47.9	7.3	55.2
<i>Contributions by the community</i>	Count	12	1	13
	%	12.5	1	13.5
<i>Pupil's fees + contributions by the community</i>	Count	21	3	24
	%	21.9	3.1	25
<i>Others</i>	Count	5	0	5
	%	5.2	0	5.2
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

For 55.2% of the sampled schools, the pupils' fees were considered the main financial source. For 13.5% of the sampled schools, the contributions by the community were considered as their main financial source. None of the sampled schools considered the budget from the state as their main financial source. Only 1% of the sampled schools considered the budget from the locality as their main financial source. Almost 68.7% of the sampled schools considered the pupils' fees and the contributions by the community as their main financial sources. The budgets from the state and the locality were considered by only 1% of the sampled schools as their main financial sources. The main financial sources for the sampled schools were the pupil's fees and the

contributions by the community. It is questionable if ever the budgets from localities represent a financial source for any of the sampled schools.

Figure V: Budget from the locality:



Only 5% of the sampled schools received budgets from the localities last year. In table (36): only 1% of the sampled schools considered the budget from the locality as their main financial source. The two results explain that some schools, which received budget from the locality, still used other financial sources like contributions by the community or NGOs to cover any budgetary deficit. Few schools were considering the budget from the localities as their sole financial source.

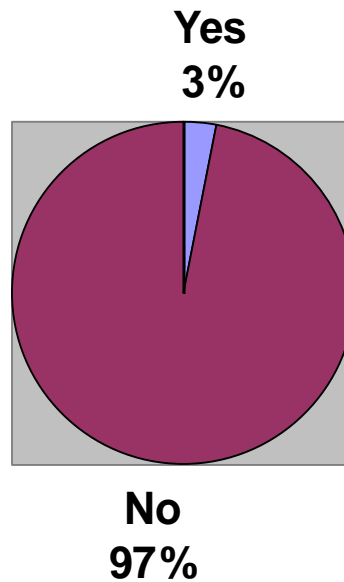
Table (36): The distribution of the sampled schools by date of first budget release from the locality:

<i>The date of the first budget release</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>At the beginning of the year</i>	Count	0	0	0
	%	0	0	0
<i>Within the first three months</i>	Count	1	0	1
	%	1	0	1
<i>Within the first six months</i>	Count	3	1	4
	%	3.1	1	4.2
<i>Never received</i>	Count	81	10	91
	%	84.4	10.4	94.8
<i>Total</i>	Count	85	11	98
	%	88.5	11.5	100

None of the sampled schools received their first budget releases from the locality at the beginning of the year. 1% of the sampled schools received their first budget releases from the locality within the first three months. 4.2% of the sampled schools received their first budget releases from the locality within the first 6 months. The first budget releases from the locality were subjected to marked delays despite that only few of the sampled schools received budgets from the locality.

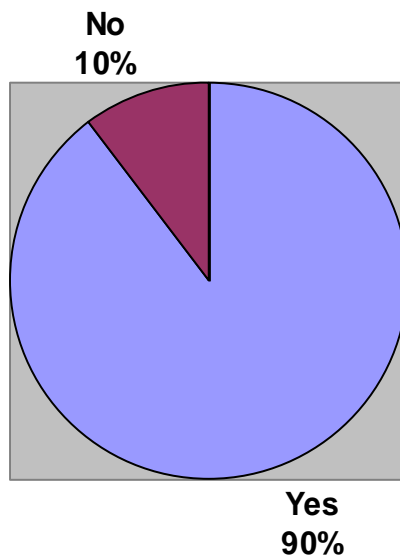
Considering the proportion of the allocated budget received, 2.1% of the sampled schools received 10-49% of the allocated budget while 2.1% received 90% to 100% of the allocated budget. Half of the schools that received half of the allocated budgets from the locality while half of them received all the allocated budgets from the locality.

Figure (V1): The sampled schools received transferred budget last year from the State Ministry of Education:



3% of the sampled schools received transferred budgets from the State Ministry of Education. 97% of the sampled schools received no budget from the State Ministry of Education. The total budgets received by the sampled schools mounted to 1,200,000 Sudanese Dinnars while the total budget received by the sampled secondary schools mounted to 620,000 Sudanese Dinnars.

Figure (V11): The sampled schools received supplies/educational materials from the state Ministry of Education



90% of the sampled schools received supplies/educational materials from the State Ministry of Education. 10% of the sampled schools received no supplies/educational materials from the state Ministry of Education. The result indicates that the vast majority of the sampled schools received supplies/educational materials from the State Ministry of Education rather than budgets.

Table (37): the personnel responsible for the approval of the financial requisition within the school:

<i>The personnel responsible for approval of requisition within the school</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>School director</i>	Count	66	8	74
	%	68.7	8.3	77.1
<i>The school accountant</i>	Count	2	0	2
	%	2.1	0	2.1
<i>A school employee</i>	Count	3	0	3
	%	3.1	0	3.1
<i>Others</i>	Count	14	3	17
	%	14.6	3.1	17.7
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

In 77.1% of the sampled schools, the school director was responsible for the approval of the financial requisition within the school. In 17.7% of the sampled schools, the responsible personnel for approval of the financial requisition included the chairperson/secretary of the parent's council, teachers and school owners for private schools.

Table (38): Summary of the of the total expenditure (all sources) in Sudanese Dinnars last year in the sampled schools:

<i>Level of the school</i>	<i>Sum</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Mean</i>
<i>Basic</i>	20892798	4200000		245798
<i>Secondary</i>	9423450	2475000	230000	856677

For the sampled basic schools:

- The total expenditures mounted to 20892798 SD.
- The mean total expenditures per school was 245798 SD

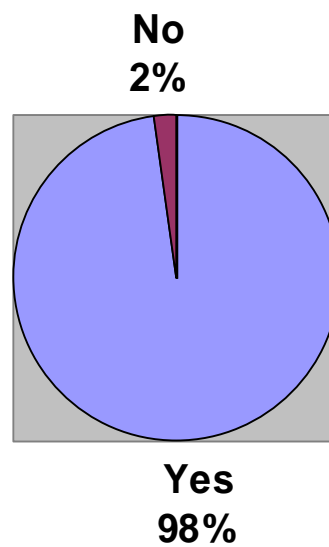
- The expenditure per pupil per year: **544 SD** per pupil per year.

For the sampled secondary schools:

- The total expenditure mounted to 9423450 SD
- The mean total expenditures per school was 856677 SD
- The expenditure per pupil per year: 2737.8 SD per pupil per year.

12. User's fees:

Figure (V111): Payment of the school fees by the pupils:



In 98% of the sampled schools, the pupils had to pay the school fees and in 2% of the sampled schools the pupils did not have to pay the school fees. The result indicates that the education is no longer free and the pupils have to pay for their education.

Table (39): Distribution of the schools according to the payment of the tuition fees by the pupils:

<i>Level of the school</i>	<i>Tuition fees payment</i>				<i>Total</i>	
	Yes		No		Count	%
	Count	%	Count	%		
<i>Basic</i>	72	75	13	13,5	85	88.5
<i>Secondary</i>	11	11.5	0	0	11	11.5
<i>Total</i>	83	86.5	13	13.5	96	100

In 86.5% of the sampled schools, the pupils had to pay the tuition fees while in 13.5% of them the pupils did not have to pay tuition fees. Despite that in a limited number of the sampled schools, the pupils did not have to pay tuition fees, still the result indicates that there are variations between the sampled schools as regards the payment of tuition fees by the pupils.

Table (40): Distribution of the schools according to the payment of the examination fees by the pupils:

<i>Level of the school</i>	<i>Examination fees payment</i>				<i>Total</i>	
	Yes		No		Count	%
	Count	%	Count	%		
<i>Basic</i>	83	86.5	2	2.1	85	88.5
<i>Secondary</i>	10	10.4	1	1	11	11.5
<i>Total</i>	93	96.9	3	3.1	96	100

In 96.9% of the sampled schools, the pupils had to pay for the examination fees while in 3.1% of them; the pupils did not have to pay the examination fees. The result indicates that in the vast majority of the sampled schools, the pupils have to pay the examination fees. Even some schools, which do not request the pupils to pay for the tuition fees, tend to request the pupils to pay the examination fees.

Table (41): Distribution of the schools according to the payment of the books and other teaching aids by the pupils:

<i>Level of the school</i>	<i>Payment for books and other teaching aids</i>				<i>Total</i>	
	Yes		No		Count	%
	Count	%	Count	%		
<i>Basic</i>	26	27.1	59	61.5	85	88.5
<i>Secondary</i>	2	2.1	9	9.4	11	11.5
<i>Total</i>	28	29.2	68	70.8	96	100

In 29.2% of the sampled schools, the pupils had to pay for books and other teaching aids while in 70.8% of them; the pupils did not have to pay for the books and other teaching aids. This is indicative that the State Ministry of Education supplies the books and the other teaching aids to the schools.

Table (42): Distribution of the schools according to the payment of the water and electricity by the pupils:

<i>Level of the school</i>	<i>Payment for the water and electricity</i>				<i>Total</i>	
	Yes		No		Count	%
	Count	%	Count	%		
<i>Basic</i>	14	14.6	71	74	85	88.5
<i>Secondary</i>	3	3.1	8	8.3	11	11.5
<i>Total</i>	17	17.7	79	82.3	96	100

In 17.7% of the sampled schools, the pupils had to pay for the electricity and water while in 82.3% of them; the pupils did not have to pay for the electricity and water. Despite that the percentage of the schools which do not request the pupils to pay for the electricity and water, was high but still the result was exaggerated due to inclusion of schools which did not have electricity and water supplies.

Table (43): Distribution of the sampled schools according to the payment of the private tuition fees by the pupils:

<i>Level of the school</i>	<i>Payment for the private tuition</i>				<i>Total</i>	
	Yes		No		Count	%
	Count	%	Count	%		
<i>Basic</i>	32	33.3	53	55.2	85	88.5
<i>Secondary</i>	4	4.2	7	7.3	11	11.5
<i>Total</i>	36	37.5	60	62.5	96	100

In 37.5% of the sampled schools, the pupils had to pay for the private tuition while in 62.55 of them; the pupils did not have to pay for the private tuition. This is indicative that more than one third of the sampled schools organized private sessions for the pupils who were willing to pay tuition for attending these sessions.

Table (44): Summary of the amount paid by the pupils last year:

<i>Measures</i>	<i>Level of the school</i>	
	Basic	Secondary
	Amount paid by pupils	Amount paid by pupils
<i>Sum</i>	1293380	500600
<i>Maximum</i>	481000	460000
<i>Minimum</i>	150	1000
<i>Mean</i>	15216	45509

The total amount paid by pupils in the sampled basic schools last year was quantified as 1293380 SD with a mean of 15216 SD per pupil. There were marked variations in the amount paid by basic pupils last year as shown by the wide range of the paid amounts extending from 150 SD up to 481000.

The total amount paid by pupils in the sampled secondary schools last year was quantified as 500600 SD with a mean of 45509 SD per pupil. The mean of the amount

paid by secondary pupils was almost thrice the mean of the amount paid by basic pupils. This is an indication that the cost of the secondary education is greater than the basic education. There were also marked variations in the amount paid by the secondary pupils as shown by the wide range of the paid amounts extending from 1000 SD up to 460000 SD.

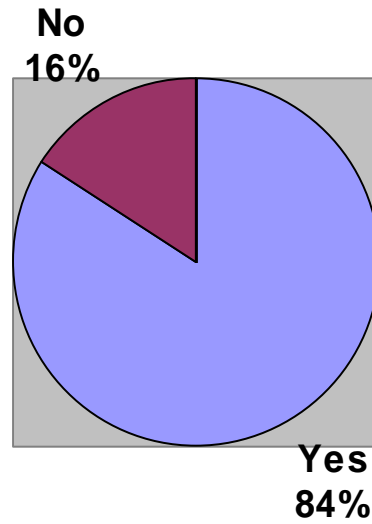
Table (45): Summary of the pupils exempted from paying the fees last year:

<i>Measures</i>	<i>Level of the school</i>	
	Basic	Secondary
	Number of pupils exempted from fees	Number of pupils exempted from fees
<i>Sum</i>	9442	761
<i>Maximum</i>	760	150
<i>Minimum</i>	6	18
<i>Mean</i>	115	69

The total number of pupils exempted from paying fees last year in the sampled basic schools was 9442 with a mean of 115 pupils per school. The exemption rate for the sampled basic schools was **24.6%**.

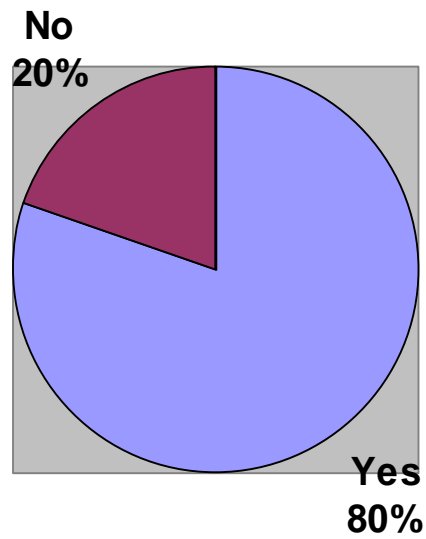
The total number of pupils exempted from paying fees last year in the sampled secondary schools was 761 with a mean of 69 pupils per school. The exemption rate for the secondary schools was **22.1%**.

Figure (1X): Exemption of pupils from paying fees based on the judgment of the school director:



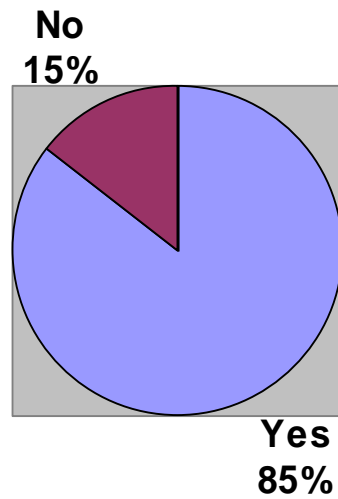
In 84% of the sampled schools, the judgment of the school director was one of the criteria for exempting pupil from paying fees.

Figure (X): Exemption of pupils from paying fees based on the poverty status of pupils:



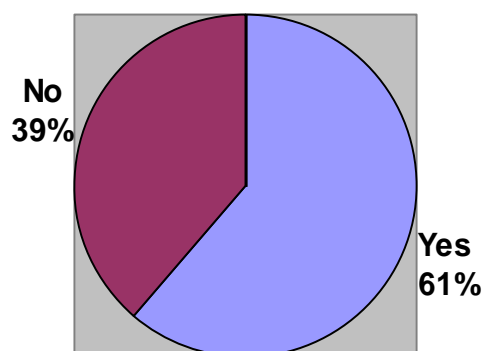
In 80% of the sampled schools, the poverty status of the pupils was one of the criteria for exempting pupils from paying school fee.

Figure (X1): Exemption of pupils from paying fees based on parents' council decision:



In 85% of the sampled schools, the parents' council decision was one of the criteria for exemption of pupils from paying the school fees.

Figure (X11): Exemption of pupils from paying fees based on the decision of the administrative unit at the locality:



In 61% of the sampled schools, the decision of the administrative unit at the locality was one of the criteria for exemption of pupils from paying school fees

It was noted that in about 80% of the sampled schools, the criteria were school related including the poverty status of the pupils, the decision of the school director and the decision of the parents' council. The decision of the administrative unit at the locality was applicable for about 61% of the sampled schools. This is indicative of the flexibility of the process for the pupils to be exempted from paying the school fees.

Table (46): The management of the collected fees at the school level:

<i>The personnel responsible for approval of requisition within the school</i>		<i>Level of the school</i>		<i>Total</i>
		Basic	Secondary	
<i>All the collected fees are to be delivered to the administrative unit at the locality level.</i>	Count	27	3	30
	%	28.1	2.1	31.3
<i>A specific portion of the collected fees is being retained by the school for operating cost.</i>	Count	54	7	61
	%	56.3	7.3	63.5
<i>All the collected fees are being retained and managed by the school</i>	Count	4	1	5
	%	4.2	1	5.2
<i>Total</i>	Count	85	11	96
	%	88.5	11.5	100

In 63.5% of the sampled schools, a specific portion of the collected fees was being retained by the school for operating cost and in 31.3% of the sampled schools; all the collected fees were to be delivered to the administrative unit at the locality level. For only 5.2% of the sampled schools, all the collected were being retained and managed by the school.

13. REPORT ON THE RESULTS OF THE FOCUS GROUP DISCUSSIONS: **EDUCATION**

The five focus group discussions (FGD) were held in the catchment areas of the selected schools. The participants were both males and females and the total number was about 45.

The following issues were addressed and discussed thoroughly by the participants:

- Selection of the school location.
- The community participation in the selection and establishment of the school.
- The community groups affected the decision of the school location.
- Accessibility of the current school location by the pupils.
- The perception of the school fees by the group and their own experiences in payment of the school fees.
- The barriers of educating the children and the role of the social supporting system in helping the poor families to educate their children.

13.1. The selection of the school location:

The community members mostly carried the selection of the school location as they were more acquainted with their villages and surroundings. The role of the government in the selection of the school location was limited. The community leaders and the educational authority in consultation with the community members always made the decision of the school location. It was not clear from the group discussions that there were certain community groups, which dominated the decision of the school location.

13.2. The community participation in selection and establishment of the school:

The groups emphasized the community participation in selection of the school location and establishment of the school building. For example one of the schools was established on a place, which was previously used as dumping area for the refuse. The community members in the village recognized the difficulties encountered by their children in reaching the school. The community members prepared the school location by themselves and established the school using the available local materials such as wood and mud. The government added later two classrooms and one office. The community members were motivated and participated actively in the establishment of the school to facilitate the education of their children. In addition the community participation extended to avail the teaching aids such as chalk, books and

pencils. In some schools, the parents' councils were active and sustained the community support through mobilization of resources from the parents and other sources.

13.3. Accessibility of the current school location by the pupils

Most of the groups described the location of the school as suitable and easy accessible by the pupils especially for those pupils living in the same village. The situation was different for those schools, which served more than one village, as the pupils should have to walk for a long distance to reach the school. One of the schools in Bara locality was serving about 6 villages and the pupils in the villages other the one where the school was located; usually suffer in reaching the school especially during the rainy season. The group pointed clearly to the suffering and problems of those pupils to attend the school and to pay for their food and transport. The participants agreed that the drop out of school was markedly increased due to such reasons.

13.4. The perception of the school fees by the group and their own experiences in payment of the school fees.

The overall perception of the school fees by the groups was that the fees were high if compared to the income of most of the families. The situation was worsened for those families with more than one pupil in the school and they could not pay the fees. The participants in one group estimated the annual school fees as 3200 SD while the participants in another group estimated the annual school fees as 1500 SD.

The failure to pay the school fees was described by the participants as one of the main reasons for school leaving and maximizing the drop out rate. In one of the villages; there were two basic schools in 1999 but due to the problem of the school fees, many pupils had left the school. Currently one of the school disappeared and the other one remained with about 150 pupils. In one of the groups, the participants criticized the contradicting policy of education as regards the school fees; on one hand the policy-makers ensured the free education but on the other hand the reality was that the citizens had to pay for the education at the school level. Some participants stressed that the school was mainly established through community participation and thus it is unfair to charge school fees. The pupils were seriously distracted from their studies at the school as they became too busy with the issue of the school fees resulting in deterioration of their standards. The teachers' performance was also negatively affected as the teachers spent time and effort in collection of the school fees. The

school authorities tended to send the pupils home if they failed to pay the school fees. Some participants stated that there was a decision from the educational authority not to send the pupils back from the school if they failed to pay the school fees but in reality, the pupils were sent home by the school authority if they failed to pay the school fees. Even in situations where the school authority resorted to installment of the school fees, the family might be able to pay the first installment but they usually failed to pay the remaining fees. The schools are usually opened in the rainy season, which is the most difficult time for most of the families as their earnings were markedly decreased. Some families received support from relatives and friends to pay the school fees. Other families resort to borrow or to sell their properties to pay the school fees. The poor families had no other option than to pull out their children from school.

13.5. The barriers of educating the children and the role of the social supporting system in helping the poor families to educate their children:

The groups identified and discussed the barriers for educating their children as follows:

- The school fees were identified as the main barrier for education as the poor families could not pay and the pupils would automatically leave the school to work in any marginal job.
- Some poor families who have many children tend to pay for one or two and then the others should leave the school to work and support their family.
- The other needs for the schoolchildren, which include the school uniform, the transport, breakfast and books were identified as extra expenses, which the family should cover to educate their children. Such extra expenses represent another barrier for education especially for the poor sectors of the community.
- The overcrowding of the classrooms, which would affect negatively the pupil's performance and the pupils became less motivated to study. Eventually this might encourage the pupils to leave the school.

- The shortage of the teachers especially in the main subjects such as the mathematics and the science was identified as another barrier for educating the children.
- The increased load on the teachers resulted in poor follow up of the curriculum.
- Some teachers joined the Sudan Distant Learning University for studying and this resulted in their absence from school with negative impact on the educational process.
- The pupils from the far villages used to walk for long distance to reach their schools.
- The non-availability of the hostels for the pupils coming from far villages and nomadic populations resulted in reduction of the numbers of the pupils attending from such areas.
- Poor school environment rendered the schools less attractive for the pupils.
- Non-existence of the school-based activities such as sports, scientific trips and recreation activities.

13.6. The role of the social supporting systems in helping the poor families to educate their children:

The groups identified the following social supporting systems:

- The informal social supporting systems: this was identified by most of the groups as the most important supporting system. The relatives, friends and rich people used to support poor pupils in the rural communities.
- The school nutritional programs were actively functioning in some schools to provide a breakfast for the schoolchildren.
- The contribution of the Children Friendly Village Organization and the World Food Program was identified by groups as providers for a breakfast for the school children. The participants criticized the two organizations, as their activities were no longer sustained as they pulled out from the villages.
- The role of the Zakat in supporting poor families was described by the groups as limited or not existing.

14. Conclusion:

- The government established around 50% of both basic and secondary schools.
- The community established about 30.2% of both the basic and secondary schools.
- On the other hand the role of the NGOs and the private sector was obviously limited in establishing schools as they established only 3% of the sampled schools.
- The number of villages served by 65.6% of the sampled schools was three and more while it was difficult to identify the number of villages served by 32.3% of the sampled schools.
- The number of pupils ranged between 110-476 in 67.6% of the sampled schools. While the number of pupils ranged between 477-832 in 25% of the sampled schools.
- **The indicators for seating pupils of the sampled basic schools:**
 - The total pupil per seat ratio: 3:1
 - The maximum pupil per seat ratio: 1:1
 - The minimum pupil per seat ratio: 6:1
 - The mean number of pupils per school was 456.
 - The mean number of seats per school was 172
- **The indicators for seating pupils of the sampled secondary schools:**
 - The total pupil per seat ratio: 1:1
 - The maximum pupil per seat ratio: 1:1
 - The minimum pupil per seat ratio: 2:1
 - The mean number of pupils per school was 313
 - The mean number of seats per school was 289
- **The indicators of the sampled basic schools could be measured:**
 - The overall drop out rate in the sampled basic schools was: 3%.
 - The overall repetition rate in the sampled basic schools: 6.7%.
 - The overall absenteeism rate in the sampled basic schools was 2.2%.
- **The indicators for the secondary schools could be measured:**
 - The overall drop out rate in the sampled secondary schools was 5.8%.
 - The overall repetition rate in the sampled secondary schools was 5.8%.

- The overall absenteeism rate in the sampled secondary schools was 2.5%.
- The total number of the classes in the sampled basic schools was 742 with a mean of 9 classes per school. Provided that the total number of the pupils in the sampled basic schools was 38402: the pupil per class ratio was: **52** pupil per class.
- The total number of the latrines in the sampled basic schools was **229** with a mean of 2 latrines per school and a ratio of **167** pupils per latrine. According to the standard of one latrine for each 20 persons then the actual number of the latrine in the sampled basic schools should mount to **1920**.
- The total number of the classes in the sampled secondary schools was 82 with a mean of 7. Provided that the total number of the pupils in the sampled secondary schools was 3442: the pupil per class ratio was: **42** pupil per class.
- The total number of the latrines in the sampled secondary schools was 60 with a mean of **8** latrines per school with a ratio of **57** pupils per school. According to the standard of one latrine for each 20 persons then the actual number of the latrine in the sampled secondary schools should be tripled to mount **172** latrines.
- Provided that the mean number of pupils per basic school was 452, the number of latrines is expected to be on average 21. None of the sampled basic school had such number of latrines. Provided the mean number of pupils per secondary school was 313, the number of latrines is expected to be 16 per school. Only one secondary school was found to have 15 latrines.
- 62.6% of the sampled basic and secondary schools were surrounded with a fence while 37.55 of them were without a fence.
- 53.5% of the sampled basic and secondary schools had water supply from the general water network, 15.6% had their water from a hand pump and 13.55 had their water from the village well. 9.3% of the sampled schools had no water supply from any source.

- 50% of the sampled schools had no source of electricity. 33.3% of the sampled schools had their electricity from the general network. 10% of the health facilities used the solar cells as a source of electricity.
- The mean pupil per teacher ratio in the sampled basic schools was 32 with a range of 9 up to 89. This reflects the marked variations in staffing of the basic schools. As some of the sampled basic schools were well staffed while others were poorly staffed.
- The mean pupil per teacher ratio for the sampled secondary schools was 17 with a range of 10 up to 30. The staffing of the sampled secondary schools showed variations but to a lesser extent comparing to the sampled basic schools.
- **In the sampled basic schools:**
 - The total number of the class teacher mounted to 284
 - The mean was 3 class teachers per school
 - The ratio of class teacher per pupil: 1 per 135 pupils.
 - The total number of the subject teachers mounted to 803
 - The mean was 10 subject teachers per school.
 - The ratio of subject teacher per pupil: 1 per 48 pupils.
 - The total number of specialized teachers mounted to 170.
 - The mean was 4 specialized teachers per school.
 - The ratio of specialized teacher per pupil: 1 per 226 pupils.
- **In the sampled secondary schools:**
 - The total number of the subject teachers mounted to 92.
 - The mean was 18 subject teachers per school.
 - The ratio of the subject teacher per pupil: 1 per 37 pupils.
 - The total number of specialized teachers mounted to 96.
 - The mean was 12 teachers per school.
 - The ratio of specialized teacher per pupil was: 1-per36 pupils
- The vast majority of the schoolteachers in both the girls and boys basic schools were females. It was noted that the absenteeism rate among the schoolteachers in the sampled basic schools was 9.9%.

- The male teachers represented about two thirds of the schoolteachers in the sampled secondary schools. It was noted that the absenteeism rate among the schoolteachers in the sampled secondary schools was 2.1%. This absenteeism rate is much lower in comparison to the absenteeism rate among the schoolteachers in the sampled basic schools.
- 78% of the absentees in the sampled basic schoolteachers were females while 22% of the absentees were males.
- In 82.3% of the sampled schools, the staff have not yet received their last month salaries despite that the visit was carried in the second week of the next month. In Only 9.4% of the sampled schools, the staff received their last month salaries before the end of the month. In 8.3% of the sampled schools, the staff received their last month salaries within one week after the end of the month. This is indicative of the delay in receiving the salaries by the staff in the sampled schools, which resulted from the weaknesses of the staff salary system.
- In 44.8% of the sampled schools, more the 5 of the staff received training during the last two years. In 36.4 of the sampled schools, between 1 –5 staff received training in the last two years. In 18.8 of the sampled schools, none of the staff received training in the last two years.
- The frequency of the technical supervisory visits was quite reasonable for about 80% of the sampled schools.
- The total number of the members of the technical supervisory team conducted the last visit for the sampled basic schools were 423 with a mean of 5 members per school. The total number of hours spent by the technical supervisory team per last visit in the sampled basic schools was 884 with a mean of 11 hours per school.
- The total number of the members of the technical supervisory team conducted the last visit for the sampled secondary school was 55 with a mean of 6 members per school. The total number of hours spent by the technical supervisory team per last visit in the sampled secondary schools was 69 hours with a mean of 8 hours per school.
- In 89.4% of the sampled schools, the technical supervision covered all the subjects. In 4.2% of the sampled schools, the technical supervision covered

half of the subjects while in 5.3%, the technical supervision covered less than half of the subjects. The magnitude of technical supervision coverage was high for the sampled schools

- The frequency of the administrative supervisory visits was quite reasonable for more than 80% of the sampled schools.
- However the percentage of the schools not visited by the administrative supervisory team (10.6%) was higher in comparison to the percentage of the sampled schools not visited by the technical supervisory team (5.2%).
- The total number of the team members conducted the last administrative supervisory visit for the sampled basic schools was 169 with a mean of 2 members per school. The total number of hours spent per last administrative supervisory visit for the basic school was 206 with an average of 3 hours per school.
- The total number of the team members conducted the last administrative supervisory visit for the sampled secondary school was 8 with a mean of 2 members per school. The total number of hours spent by per last administrative visit was 25 with a mean of 6 hours per school.
- Almost 68.7% of the sampled schools considered the pupils' fees and the contributions by the community as their main financial sources. The budgets from the state and the locality were considered by only 1% of the sampled schools as their main financial sources.
- The main financial sources for the sampled schools were the pupil's fees and the contributions by the community. It is questionable if ever the budgets from localities represent a financial source for any of the sampled schools.
- Only 5% of the sampled schools received budgets from the localities last year. Only 1% of the sampled schools considered the budget from the locality as their main financial source.
- None of the sampled schools received their first budget releases from the locality at the beginning of the year. 1% of the sampled schools received their first budget releases from the locality within the first three months. 4.2% of the sampled schools received their first budget releases from the locality within the first 6 months.

- Considering the proportion of the allocated budget received, 2.1% of the sampled schools received 10-49% of the allocated budget while 2.1% received 90% to 100% of the allocated budget. Half of the schools that received half of the allocated budgets from the locality while half of them received all the allocated budgets from the locality.
- 3% of the sampled schools received transferred budgets from the State Ministry of Education. 97% of the sampled schools received no budget from the state Ministry of Education. The total budgets received by the sampled schools mounted to 1,200,000 Sudanese Dinnars while the total budget received by the sampled secondary schools mounted to 620,000 Sudanese Dinnars.
- 90% of the sampled schools received supplies/educational materials from the State Ministry of Education. 10% of the sampled schools received no supplies/educational materials from the state Ministry of Education.
- In 77.1% of the sampled schools, the school director was responsible for the approval of the financial requisition within the school. In 17.7% of the sampled schools, the responsible personnel for approval of the financial requisition included the chairperson/secretary of the parent's council, teachers and school owners for private schools.
- For the sampled basic schools:
 - The total expenditures mounted to 20892798 SD.
 - The mean total expenditures per school was 245798 SD
 - The expenditure per pupil per year: 544 SD per pupil per year.
- For the sampled secondary schools:
 - The total expenditure mounted to 9423450 SD
 - The mean total expenditures per school was 856677 SD
 - The expenditure per pupil per year: 2737.8 SD per pupil per year.
- In 98% of the sampled schools, the pupils had to pay the school fees and in 2% of the sampled schools the pupils did not have to pay the school fees.
- In 86.5% of the sampled schools, the pupils had to pay the tuition fees while in 13.5% of them the pupils did not have to pay tuition fees.

- In 96.9% of the sampled schools, the pupils had to pay for the examination fees while in 3.1% of them; the pupils did not have to pay the examination fees.
- In 29.2% of the sampled schools, the pupils had to pay for books and other teaching aids while in 70.8% of them; the pupils did not have to pay for the books and other teaching aids.
- In 17.7% of the sampled schools, the pupils had to pay for the electricity and water while in 82.3% of them; the pupils did not have to pay for the electricity and water.
- In 37.5% of the sampled schools, the pupils had to pay for the private tuition while in 62.55 of them; the pupils did not have to pay for the private tuition.
- The total amount paid by pupils in the sampled basic schools last year was quantified as 1293380 SD with a mean of 15216 SD per pupil.
- The total amount paid by pupils in the sampled secondary schools last year was quantified as 500600 SD with a mean of 45509 SD per pupil.
- The mean of the amount paid by secondary pupils was almost thrice the mean of the amount paid by basic pupils.
- The total number of pupils exempted from paying fees last year in the sampled basic schools was 9442 with a mean of 115 pupils per school. The exemption rate for the sampled basic schools was 24.6%.
- The total number of pupils exempted from paying fees last year in the sampled secondary schools was 761 with a mean of 69 pupils per school. The exemption rate for the secondary schools was 22.1%.
- In 61% of the sampled schools, the decision of the administrative unit at the locality was one of the criteria for exemption of pupils from paying school fees
- It was noted that in about 80% of the sampled schools, the criteria were school related including the poverty status of the pupils, the decision of the school director and the decision of the parents' council. The decision of the administrative unit at the locality was applicable for about 61% of the sampled schools.

- In 63.5% of the sampled schools, a specific portion of the collected fees was being retained by the school for operating cost and in 31.3% of the sampled schools; all the collected fees were to be delivered to the administrative unit at the locality level. For only 5.2% of the sampled schools, all the collected were being retained and managed by the school.
- In some schools, the parents' councils were active and sustained the community support through mobilization of resources from the parents and other sources.
- Most of the groups described the location of the school as suitable and easy accessible by the pupils especially for those pupils living in the same village. The situation was different for those schools, which served more than one village, as the pupils should have to walk for a long distance to reach the school.
- The overall perception of the school fees by the groups was that the fees were high if compared to the income of most of the families. The situation was worsened for those families with more than one pupil in the school and they could not pay the fees.
- The failure to pay the school fees was described by the participants as one of the main reasons for school leaving and maximizing the drop out rate.
- In one of the groups, the participants criticized the contradicting policy of education as regards the school fees; on one hand the policy-makers ensured the free education but on the other hand the reality was that the citizens had to pay for the education at the school level.
- Some participants stated that there was a decision from the educational authority not to send the pupils back from the school if they failed to pay the school fees but in reality, the pupils were sent home by the school authority if they failed to pay the school fees.
- The school nutritional programs were actively functioning in some schools to provide a breakfast for the schoolchildren.
- The contribution of the Children Friendly Village Organization and the World Food Program was identified by groups as providers for a breakfast for the school children.

- The role of the Zakat in supporting poor families for the education of their children was described by the groups as limited or not existing.

15. Recommendations:

1. Strengthening the community participation and involvement in all stages of the site selection, establishment, management and maintenance of the schools in order to improve the performance of the educational system at all levels.
2. Strengthening of the roles and functions of the parents' councils at the school level to mobilize extra resources in support of the educational activities.
3. Partnerships have to be established between government, community, NGOs and the private sector to mobilize resources for support of education.
4. Encouragement of the private sector to invest in education within the current policies and strategies of the government.
5. Development and implementation of school mapping for the state to improve the accessibility of the schools for the pupils and to contribute to reduction of the high drop out rates especially in the rural areas.
6. It is important to address the seating of all pupils as priority especially in the basic schools.
7. Comprehensive planning for reduction of the current high drop out rates through conduct of appropriate school-based analysis of the underlying determinants.
8. Inclusion of social school-based services in order to provide support for the pupils with social problems.
9. Environmental school health program has to be established in collaboration with the state school health authority to improve the school environment including fences, latrines, water supplies and other physical environment elements.
10. An effective strategy for the teaching staff development has to be formulated and implemented with re-distribution of the current teaching staff to cover the poorly staffed schools.
11. Improvement of the staff salary system is essential in order to ensure timely distribution of the salaries at the school level.
12. Capacity building of the school staff through organization of quality in-service training with focusing on newly appointed teachers and those teachers who did not attend training for two years and more.

- 13.** Strengthening of the current technical supervisory system to ensure sustainability of the high performance and to improve the quality of the education.
- 14.** Upgrading of the current administrative supervisory system to support the educational system performance and efficiency.
- 15.** It is necessary to advocate among the policy and decision makers at the state and locality level to allocate extra budgets for education.
- 16.** Quarterly budgetary release system from the locality with effective monitoring and auditing mechanisms is suggested to ensure better financial performance.
- 17.** It is necessary to advocate among the senior executive and planning officers at both the state and locality level about the importance of sufficient budgets to sustain the transfer of budgets in support of education.
- 18.** It is important to mobilize the concerned budget staff at the locality level to collect the earmarked budgets to ensure that the earmarked budgets for education are transferred to their localities.
- 19.** It is necessary to advocate among the senior officers at the state level to increase the supplies/goods based on the actual needs of the schools especially in the rural areas.
- 20.** A basic training course on principles of financial management has to be designed and implemented for the school directors, parent's council's secretaries and school owners in order to improve their financial performance.
- 21.** Educational policy and strategies have to be developed and endorsed to clarify important issues of financing, fees, exemption and support for poor sectors of the community. Effective monitoring and evaluation system has to be developed to ensure implementation of the endorsed policies and strategies at the school level.
- 22.** Effective mechanisms for pooling of the pupil's fees has to be established at the locality level to ensure proper management and redistribution of the resources based on the actual needs of the schools.
- 23.** Strengthening and expansion of the school nutritional programs to cover the schools especially in the rural areas.
- 24.** It is important to advocate among the senior officials of the social supporting system i.e. Zakat in order to support poor families for educating their children.

- 25.** Establishment of school-based activities such as sports, scientific trips and recreation activities in order to render the school environment attractive for the pupils..

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17. Annex**FEDERAL MINISTRY OF HEALTH-Khartoum, Sudan 2005.****TITLE: THE IMPACT OF INCREASED PUBLIC SPENDING ON HEALTH AND EDUCATION SERVICES AND UTILIZATION BY THE POOR-NORTHERN KORDOFAN-SUDAN- 2005-2006****Checklist for the health facility:****Date:****Name of Locality:** _____**Name of the health facility:** _____**Interviewer's name:** _____ **Interviewer's signature:** _____**Field supervisor's name:** _____ **Field supervisor's signature:** _____

Section (1): Family Planning services:

NO	ITEM	CODING CATEGORIES
1	Examination couch	Seen.....1 Not seen.....2
2	Indicate examination couch is clean (No visible stain, dust, blood)	Clean.....1 Not clean.....2
3	Examination couch covered with sheet	Covered.....1 Not covered.....2
4	Cupboard for keeping the FP methods	Seen.....1. Not seen.....2
5	Family planning cards	Seen.....1 Not seen.....2
6	Family planning register	Seen.....1 Not seen.....2
7	Family planning methods wall chart	Seen.....1 Not seen.....2
8	Other family planning IEC materials	Seen.....1 Not seen.....2

Section (2): ANC services:

NO	ITEM	CODING CATEGORIES
1	Examination couch	Seen.....1 Not seen.....2
2	Indicate examination couch is clean (No visible stain, dust, blood)	Clean.....1 Not clean.....2
3	Examination couch covered with sheet	Covered.....1 Not covered.....2
4	Sphygmomanometer	Seen.....1 Not seen.....2
5	Stethoscope	Seen.....1 Not seen.....2
6	Thermometer	Seen.....1 Not seen.....2
7	Fetal stethoscope	Seen.....1 Not seen.....2
8	Adult weighing scale	Seen.....1 Not seen.....2
9	Gloves	Seen.....1 Not seen.....2
10	Soap and water for hand washing	Seen.....1 Not seen.....2
11	Dustbin	Seen.....1 Not seen.....2

Section (3): Delivery services

NO	ITEM	CODING CATEGORIES
1	Delivery couch	Seen.....1 Not seen.....2
2	Indicate that delivery couch is clean (No visible stain, dust, blood)	Clean.....1 Not clean.....2
3	Delivery couch covered with sheet	Covered.....1 Not covered.....2
4	Sphygmomanometer	Seen.....1 Not seen.....2
5	Stethoscope	Seen.....1 Not seen.....2

6	Thermometer	Seen.....1 Not seen.....2
7	Fetal stethoscope	Seen.....1 Not seen.....2
8	Neonatal weighing scale	Seen.....1 Not seen.....2
9	Sterile Gloves	Seen.....1 Not seen.....2
10	Soap and water for hand washing	Seen.....1 Not seen.....2
11	Syringes & Needles	Seen.....1 Not seen.....2
12	Needle holder	Seen.....1 Not seen.....2
13	Sterile scissors	Seen.....1 Not seen.....2
14	Suture materials	Seen.....1 Not seen.....2
15	Cord clamp	Seen.....1 Not seen.....2
16	Ergometrine injections	Seen.....1 Not seen.....2
17	Dustbin	Seen.....1 Not seen.....2
18	Number of normal deliveries per last year	.....
19	Number of forceps delivery per last year	.....

Section (4): Child health services

NO	ITEM	CODING CATEGORIES
1	Examination couch	Seen.....1 Not seen.....2
2	Indicate examination couch is clean (No visible stain, dust, blood)	Clean.....1 Not clean.....2
3	Examination couch covered with sheet	Covered.....1 Not covered.....2
4	Sphygmomanometer	Seen.....1

		Not seen.....2
5	Stethoscope	Seen.....1 Not seen.....2
6	Thermometer	Seen.....1 Not seen.....2
7	Weighing scale	Seen.....1 Not seen.....2
8	Gloves	Seen.....1 Not seen.....2
9	Soap and water for hand washing	Seen.....1 Not seen.....2
10	Dustbin	Seen.....1 Not seen.....2

Section (5): Immunization services

NO	ITEM	CODING CATEGORIES
1	Refrigerator for the vaccines	Seen.....1 Not seen.....2
2	Temperature monitoring chart fixed to the refrigerator.	Seen.....1 Not seen.....2
3	A functioning thermometer in the refrigerator.	Seen.....1 Not seen.....2
4	Is vaccine available today	Available.....1 Not available.....2
5	Measles vaccine	Available.....1 Not available.....2
6	Polio vaccine	Available.....1 Not available.....2
7	BCG	Available.....1 Not available.....2
8	DPT	Available.....1 Not available.....2
9	Tetanus toxoid	Available.....1 Not available.....2
10	Immunization record	Seen.....1 Not seen.....2
11	Child health cards	Seen.....1 Not seen.....2

12	Weighing scales for the babies	Seen.....1 Not seen.....2
13	Vaccine boxes with ice packs	Seen.....1 Not seen.....2
14	Immunization IEC materials	Seen.....1 Not seen.....2
15	Soap and water for hand washing	Seen.....1 Not seen.....2
16	Dustbin	Seen.....1 Not seen.....2
17	Freezing monitor	Seen.....1 Not seen.....2
18	Number of targeted babies for immunization per last year	.....
19	Number of fully immunized babies per last year	.....

Section (6): The outpatient services:

NO	ITEM	CODING CATEGORIES
1	Examination couch	Seen.....1 Not seen.....2
2	Indicate examination couch is clean (No visible stain, dust, blood)	Clean.....1 Not clean.....2
3	Examination couch covered with sheet	Covered.....1 Not covered.....2
4	Sphygmomanometer	Seen.....1 Not seen.....2
5	Stethoscope	Seen.....1 Not seen.....2
6	Thermometer	Seen.....1 Not seen.....2
7	Adult weighing scale	Seen.....1 Not seen.....2
8	Soap and water for hand washing	Seen.....1 Not seen.....2
9	Dustbin	Seen.....1 Not seen.....2
10	Number of outpatient visits per last	.....

	year	
11	Number of admitted cases last year (for hospitals)	.....

Section (7):Operating theatre:

NO	ITEM	CODING CATEGORIES
1	Surgical table	Seen.....1 Not seen.....2
2	Anesthesia machine	Seen.....1 Not seen.....2
3	Sterilization drum	Seen.....1 Not seen.....2
4	Hot air oven	Seen.....1 Not seen.....2
5	C-section set	Seen.....1 Not seen.....2
6	Laparatomy set	Seen.....1 Not seen.....2
7	Blood transfusion facilities	Available.....1 Not available.....2
8	Number of minor surgical operations per last year	.....
9	Number of major surgical operations per last year	.....
10	Number of C-section per last year	.....

Section (7): The Laboratory

NO	ITEM	CODING CATEGORIES
1	A functioning microscope	Seen.....1 Not seen.....2
2	Reagents for blood film for malaria	Seen.....1 Not seen.....2
3	Reagents for Widal test	Seen.....1 Not seen.....2
4	Glucometer	Seen.....1 Not seen.....2
5	Calorimeter	Seen.....1 Not seen.....

6	Blood urea kits	Seen.....1 Not seen.....2
7	HIV/AIDS kits	Seen.....1 Not seen.....2

Section (8): The pharmacy:

NO	ITEM	CODING CATEGORIES
1	Artemether tablets/injections	Seen.....1 Not seen.....2
2	Quinine tablets/ injections	Seen.....1 Not seen.....2
3	Fansidar tablets	Seen.....1 Not seen.....2
4	Procaine penicillin	Seen.....1 Not seen.....2
5	Mebendazole tablets	Seen.....1 Not seen.....2
6	Metronidazole tablets	Seen.....1 Not seen.....2
7	Amoxicillin capsules	Seen.....1 Not seen.....2
8	Tetracycline capsules	Seen.....1 Not seen.....2
9	Seprin tablets	Seen.....1 Not seen.....2
10	Ciprofloxacin	Seen.....1 Not seen.....2
11	ORS	Seen.....1 Not seen.....2
12	Vitamin capsules	Seen.....1 Not seen.....2
13	Iron and foliate tablets	Seen.....1 Not seen.....2
14	Number of drugs prescribed per outpatient visit (<i>please check the last 10 prescriptions to obtain the indicator</i>)	.....

15	The average cost/per prescription (<i>please check the last 10 prescriptions to obtain the indicator</i>)	.....
16	The total number of available items in the pharmacy	.....
17	The list of essential drugs	Seen.....1 Not seen.....2

GUIDELINES FOR THE FOCUS GROUP DISCUSSIONS

1. Prelude:

- Focus group discussions (FGDs) are powerful methods to:
- Evaluate services & activities.
- Obtain in-depth information.
- Test new ideas.
- Assess the perception of the public about certain issues.
- Identify needs.
- Identify the determinants of behavior.

2. **FGDs** are multiple interviews (for small group) at the same time in the same group.

3. Logistics preparations:

- Ensure the availability of a suitable venue.
- Suitable seating.
- Good environment for transparent communication.
- Provide refreshments for participants.
- Reduce/isolate the barriers.

4. Other arrangements:

- Identify the participants, ensure homogeneity of the group.
- **For the purpose of this study it is expected that in each locality two focus group discussions will be held. One group discussion will be organized targeting the education issues and the other one will be**

targeting the health services users and non-users. The participants for the education group will be selected from the parent's councils of the selected schools and as well the parents of the school leavers. The group discussion for the health services will be selected from the attendants of the selected health facilities. The first five attendants to the facility will be approached and informed about the purpose and place of the group discussion. For the health services non-users can be identified and nominated by the community leaders in the village.

- Invite the participants and ensure that they know the venue and agree with the selection of the venue.
- Remind the participants about the time and venue.
- Provide transportation if needed.
- Eliminate all the barriers (socioeconomic).

5. Preparations for the sessions:

- Define/identify the objectives of the meeting.
- Review the questions to be discussed (**the questions should not exceed 5 to 6 major questions**).
- **The following are the questions expected to be discussed by the groups:**

For the education group:

- 1. How the location of the school was selected?**
- 2. Were they invited to participate in the selection of the school location? To what extent their views were considered?**
- 3. Which community groups affected the decision of the school location and establishment?**
- 4. Is the current location of the school is accessible for their children? Why?**
- 5. How the group perceived the school fees? Is it reasonable or not? What is their own experience with the payment of the school fees?**

- 6. What are the other barriers for educating their children? How the social supporting systems help the poor families to educate their children?**

For the health services group:

- 7. How the location of the health facility was selected?**
- 8. Were they invited to participate in the selection of the health facility location? To what extent their views were considered?**
- 9. How the group perceived the health care services fees? What is their own experience with the payment of fees for health services? Is it a real barrier for service utilization or not? Why?**
- 10. What are the other barriers for health services utilization as viewed by the group?**
- 11. How the group perceived the quality of the provided health services? What is their experience with the health facility as regards privacy? Health care attitude..**

- Plan the session.
- Ensure participants will attend the session (take necessary measures by calling potential participants, confirm the venue and time and stress the importance of participation).
- Send/provide the participants with the list of questions, the group will discuss; if not possible (in case of illiterate persons) read the questions for the participants several times.
- Inform the participants about the importance of their sharing in the discussion and that their discussions are going to be the base for the research report.

6. Planning the session:

- **Scheduling:** The time for the session ranges between one and one and a half hour.
- **Ground rules:**
- All the participants must participate as much possible.

- Sustain participation through:
- Keep focused.
- Maintain momentum.
- Get closure on questions.

Agenda:

- Consider welcoming/thanking of the participants, review the questions, objectives of the session, introduce questions and answers, and summarize the discussion.

Membership:

- Ideal number of the group ranges between 8-10 members with similar nature. The selected members should be selective and reflective.

Recording:

- Plan to record the session, not to count on memory.
- A reported has to be appointed to take notes.

7. **Facilitating the session:**

- The goal of the moderator is to collect useful information.
- Introduce yourself and the reporter.
- Explain why you are recording the session.
- Carry out the agenda.
- Read each question carefully, allow each member to record his/her answer. Then facilitate discussion around the answers to get more information and to keep the group focus on the questions.
- After each question is answered, reflect back a summary of what you have heard.
- Ensure that one or two persons should not dominate participation in the discussion.
- Closing session: Thank the participants for their participation, tell them that they will receive a copy of the report generated from their answers, and then you can adjourn the meeting.

8. **What after the session?**

- Verify that the recorder has worked properly throughout the session.
- Write down any observation i.e. if the participants are surprised or if they are offended by any of the questions or any comment made.

FEDERAL MINISTRY OF HEALTH-Khartoum, Sudan 2005.

TITLE: THE IMPACT OF INCREASED PUBLIC SPENDING ON HEALTH AND EDUCATION SERVICES AND UTILIZATION BY THE POOR-NORTHERN KORDOFAN-SUDAN- 2005-2006.

STANDARDIZED ADMINISTERED QUESTIONNAIRE (Health facility survey)

General Instructions:

- Please fill in pencil.
- Please fill all of the appropriate data.
- Ensure that the respondent understands the question.
- Ask all the respondents all the questions in the same wording.
- Ensure that the respondent answers each question.
- Ensure that the respondent's answers are recorded in appropriate places.
- Revise the questionnaire at the end of the interview and sign.
- Give all the completed questionnaires to the field supervisor daily.
- **TO BE READ TO ALL RESPONDANTS:**
 " I represent FMOH-Sudan. We are interviewing health facility staff in North Kordofan State for a research. We hope we can ask you some questions today. All answers will be seen only by the research team and will be kept confidential. Please be as accurate and truthful as possible, since your answers will help us to

recognize the current situation. The yielded information will be useful for policy and strategy reformulation. If you have any questions about what is asked, please ask me to explain. Thank you in advance for your cooperation".

Date of interview:D DD MM YY

Serial Number:

Name of Locality: _____

Job of the respondent: _____

Record the time interview started: _____

Interviewer's name: _____

Interviewer's signature:

Field supervisor's name: _____

Field supervisor's signature:

Section (1): Basic characteristics of the facility:

1) What is name of the health facility? _____

2) What is the location of the health facility?

a) Urban

b) Rural

3) What is the type of the health facility?

a) Hospital b) Health center c) Dressing station d) Dispensary

e) PHC unit

4) Who built the facility?

a) Government.

b) NGO

c) Private d) Community

e) Others (specify).....

5) What is the available source of water?

a) General network

b) Village-well

c) Facility well

d) Hafeer

e) Hand pump f) Non

6) Is water from this source available today?

- a. Yes
- b) No

7) What is the available source of electricity for the facility?

- a) General network
- b) Facility generator
- c) Village generator
- d) Solar cell
- e) Non

8) Is this source of electricity working today? A) Yes b) No

9) What are the actual daily hours of the facility operation?

- a) Less than 8 hours
- b) 8-10 hours
- c) 24 hours

10) How many days per week is the facility open?

11) What is the estimated size of the population served by the facility?

- a) Less than 1000
- b) 1000 – 4999
- c) 5000-9999
- d) 10000 –14999
- e) More than 15000

Section (2): Staff information

12) What is the total number of the current staff in the facility?

13) How many permanent staff of each category does the facility have?

a) Doctors

b) Nurses

c) Medical assistants

d) Laboratory assistants

e) Laboratory technicians

f) Health visitors

g) Assistant health visitors

h) Pharmacists	<input type="text"/>	<input type="text"/>
i) Assistant pharmacists	<input type="text"/>	<input type="text"/>
j) Nutritionists	<input type="text"/>	<input type="text"/>
k) Statisticians	<input type="text"/>	<input type="text"/>
l) Vaccinators	<input type="text"/>	<input type="text"/>
m) Nurse-midwife	<input type="text"/>	<input type="text"/>
n) Village-midwife	<input type="text"/>	<input type="text"/>
o) Community health workers	<input type="text"/>	<input type="text"/>
S) Nutritional guide	<input type="text"/>	<input type="text"/>
14) How many of the staff are not present today for duty?	<input type="text"/>	<input type="text"/>
15) What are the reasons for the absence of the staff?	<input type="text"/>	
a) Sick leave.	<input type="text"/>	
b) Outreach activity.	<input type="text"/>	
c) Travel to the state Ministry of Health.	<input type="text"/>	
d) Travel to the Federal Ministry of Health.	<input type="text"/>	
e) Training.	<input type="text"/>	
f) Off duty.	<input type="text"/>	
g) Annual leave.	<input type="text"/>	
h) Others	<input type="text"/>	
i) No reasons	<input type="text"/>	

16) For the last month when did the staff received their salaries?

- a) Before the end of the month.
- b) Not yet received.
- c) Within one week after the end of the month.
- d) Within 4 weeks after the end of the month.
- e) More than 4 weeks.

17) Where did the staff receive their last month salaries?

- a) At the facility.
- b) At the locality
- c) At the state Ministry of Health.

18) How many staff members received in-service training during the last two years?

- a) Non
- b) 1-5
- c) More than 5

19) When was the last supervisory visit conducted by the immediate supervisory team?

- a) Within the last month.
- b) Within the last three months
- c) Within the last six month.
- d) More than six month.
- e) Never visited.

20) How many members of the supervisory team visited the facility for the last visit?

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21) How many hours did the supervisory team spend during the last visit?

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Section (3): Financing of the health facility:

22) What are the financial sources of the facility?

- a) Budget from the state. 1) Yes 2) No
- b) Budget from the locality. 1) Yes 2) No
- c) Users' fees. 1) Yes 2) No
- d) Contributions by the community. 1) Yes 2) No
- e) Others. Specify.....

23) What is the total budget in Sudanese Dinnars of the health facility last year?

- a) Budget from the state
 - b) Budget from the locality.
 - c) User's fees
 - d) Contributions by the community
 - e) Others
- | | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

24) For the last year did you receive the allocated budget from the state/locality? “ If the answer is “No”, skip to question “27”

- a) Yes. b) No

25) When was the first budget release from the state/locality received by the facility last year?

- a) At the beginning of the year.

- b) Within the first three months.
- c) Within the first six months.
- d) More than six months.
- e) At the beginning of every month.

26) What percentage of the allocated budget did you receive last year?

- a) Less than 10%.
- b) Between 10% to 49%
- c) Between 50% to 89%.
- d) 90% to 100%

27) Have the facility ever received transferred budget from the federal level during the last year?

- a) Yes
- b) No

28) If the answer to question “27” is “yes” What is the amount received in Sudanese Dinnars?

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29) Did the facility receive any supplies/ goods from the Federal Ministry of Health last year?

- a) Yes
- b) No

30) If the answer to question ‘29’ is “Yes” which?

- a)
- b).....
- C).....d).....e).....
- f).....

31)Who is responsible for approval of the financial requisition within the facility?

- a) The health care provider in charge of the facility.
- b) The facility accountant.
- c) A facility employee.

d) Others (Specify).....

Section (4): User’s fees & Social support

32) Do the patients have to pay for services provided by the facility?

a) Yes

b) No

33) How the cost of each service is being determined?

a) According to the standard list prepared by the state ministry authority.

b) The cost is decided by the facility.

c) The cost is decided by the health care providers.

d) Others (Specify).....

34) Which services are exempted?

a) Emergency cases.

1) Yes

b) No

b) Cases referred to the higher level.

1) Yes

b) No

c) Immunization services.

1) Yes

b) No

d) Family planning services.

1) Yes

b) No

e) ANC services.

1) Yes

b) No

f) Deliveries.

1) Yes

b) No

g) Tuberculous patients

1) Yes

b) No

35) How the exempted services are being determined at the facility level?

a) According to the opinion of the health care provider.

b) According to the judgment of the of the secretary general.

c) According to the standard list prepared by the state authority.

d) Others (specify).....

36) For those patients who failed to pay the service fees: What will be the situation?

- a) No services will be provided.
- b) No services will be provided and they will be referred to the social supporting services i.e. Zakat.
- c) Services will be provided pending that the relatives and community members will contribute.
- d) Services will be provided and they will be referred to the social supporting system.
- e) Others (specify).....

37) What is the total number of patients/ clients attended the facility last month?

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38) How many patients/clients failed to pay the services fees during the last month?

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39) How many patients/clients get supported by the social supporting system during the last month?

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40) How the collected fees at the facility level are being managed?

- a) All the collected fees are to be delivered to the state financial authority.
- b) All the collected fees are to be delivered to the locality financial authority.
- c) A specific portion of the collected fees is being retained by the facility for operating cost.
- d) All the collected fees are being retained and managed by the facility.

41) What is the total cost in SD to be paid by the patient for?

- a) **An episode of simple malaria.**
- b) ANC visit.
- c) Normal delivery at the hospital.
- d) Drainage of an abscess
- e) Appendicectomy

Section (6): Health services**42) Does this facility provide family planning services?**

a) Yes

b) No

43) Are family planning services being offered today?

a) Yes

b) No

[IF OFFERED ON SPECIFIC DAYS, BUT A CLIENT CAN BE SERVED TODAY, MARK 'YES']**44) How many days per week are family planning services provided?****45) Who provide family planning services in the facility?**

a) The doctor

b) The health visitor.

c) Assistant health visitor.

d) The medical assistant.

e) The nurse

f) The nurse midwife.

46) Which of the family planning methods can the client obtain today?

FP method	Yes (1)	No (2)
a) Combined contraceptive pills.		
b) Mini-pills		
c) Injectable		
d) IUD		
e) Foaming tablets		
f) Natural methods		
g) Male condoms		
h) Female condom		
y) Emergency contraceptive pills		

z) Tubal ligation		
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47) Where the family planning clients are examined?

- a) Separate room with door and curtain
b) Curtained area.
c) Same room with others.

48) Are the following services available for to clients at this facility?

Services	Yes	No
ANC		
Delivery		
PNC		
Post-abortion care		

49) Are ANC services being provided today?

- a) Yes b) No

50) How many days per week ANC services being provided?

51) Where ANC attendants are being examined?

- a) Separate room with door and curtain
b) Curtained area.
c) Same room with others.

52) Are delivery services being provided today?

- a) Yes b) No

53) Where delivery services take place?

- a) Separate room with door and curtain
b) Curtained area.
c) Same room with others.

54) Does the facility provide child health services?

- a) Yes
- b) No

55) Are child health services being provided today?

- a) Yes
- b) No

56) Are immunization services available in this facility?

- a) Yes
- b) No

57) How many days per week immunization services being provided?

58) Where child health services being provided?

- a) In the outpatient department.
- b) In the MCH unit.
- c) Both

59) Where are the outpatient attendants being examined?

- a) Separate room with door and curtain
- b) Curtained area.
- c) Same room with others.

60) Is there a waiting area for the patients within the facility?

- a) Yes
- b) No

61) Does the facility have beds for admitted cases?

- a) Yes
- b) No

62) If the answer to question “61” is “yes”; what is the total number of beds?

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63) Does the facility have waiting room for short stay?

- a) Yes
- b) No

64) Does the facility have an operating theatre?

- a) Yes
- b) No

65) Does the facility have a laboratory?

- a) Yes
- b) No

66) Where is the facility laboratory located?

- a) In a separate room with door.
- b) Same room with others.

67) Who provide the laboratory services?

- a) Laboratory assistant.
- b) Laboratory technician.
- c) Laboratory technologist.

68) Does the facility have a pharmacy?

- a) Yes
- b) No

69) Where the facility pharmacy located?

- a) In a separate room with door.
- b) Same room with others.

70) What is the status of the structure of the pharmacy?

- a) One room with one or two cupboards.
- b) One room with adequate shelves and cupboards.
- c) One room with adequate shelves and cupboards backed with a storeroom.
- d) Others (specify)

71) Are the drugs supplies procured regularly to the health facility?

- a) Yes
- b) No

72) Who is providing the services in the pharmacy?

- a) Pharmacist
- b) Assistant pharmacist.
- c) Nurse.

FEDERAL MINISTRY OF Education-Khartoum, Sudan 2005.

TITLE: THE IMPACT OF INCREASED PUBLIC SPENDING ON HEALTH AND EDUCATION SERVICES AND UTILIZATION BY THE POOR-NORTHERN KORDOFAN-SUDAN- 2005-2006.

STANDARDIZED ADMINISTERED QUESTIONNAIRE (Schools)

General Instructions:

- Please fill in pencil.
- Please fill all of the appropriate data.
- Ensure that the respondent understands the question.
- Ask all the respondents all the questions in the same wording.
- Ensure that the respondent answers each question.
- Ensure that the respondent's answers are recorded in appropriate places.
- Revise the questionnaire at the end of the interview and sign.
- Give all the completed questionnaires to the field supervisor daily.
- **TO BE READ TO ALL RESPONDANTS:**
" I represent FMOE-Sudan. We are interviewing school staff in North Kordofan State for a research. We hope we can ask you some questions today. All answers will be seen only by the research team and will be kept confidential. Please be as accurate and truthful as possible, since your answers will help us to recognize the current situation. If you have any questions about what is asked, please ask me to explain. Thank you in advance for your cooperation".

Date of interview: D DD MM YY

Serial Number: _____

Name of the respondent: _____

Sex: M F

Name of Locality: _____

Job of the respondent: _____

Record the time interview started: _____

Interviewer's name: _____ **Interviewer's signature:** _____

Field supervisor's name: _____ **Field supervisor's signature:** _____

Section (1): Basic characteristics of the facility:

1) What is name of the facility? _____

2) What is the type of the school?

a) Basic school b) Secondary school

3) Who built the school?

a) Government. b) NGO c) Private d) Community

e) Others (Specify).....

4) When the school was built?

a) Less than ten years b) 10-20 years

c) More than 20 years

5) What is the catchment population served by the school?

a) Less than 1000 b) 1000 – 4999 c) 5000-9999

d) 10000 –14999 e) More than 15000

6) What is the catchment area of the school?

a) One village b) Two villages c) Three villages and more

d) Difficult to identify

7) What is the total number of the pupils in the school?

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8) What is book per pupil ratio (*only books delivered by the school*) in each of the following classes? "For primary schools"

- a) Class (1):.....
- b) Class (4):.....
- c) Class (8)

9) What is the ration of a book per pupil (*only books delivered by the school*) in each of the following classes? (For secondary schools)

- a) Class (1).....
- b) Class (2).....
- c) Class (3).....

10) What is the distribution of the pupils per each class?

Class	Beginning of the year			Today		School leavers during the year
	Total	Repeaters	Transferred	Total	Absent today	
1						
2						
3						
4						
5						
6						
7						
8						
Total						

11) Does the school have a built external wall?

- a) Yes
- b) No

12) How many rooms are composing the school?

- a) 1-5
- b) 6-10
- c) 10 and more

13) What is the distribution of the schoolrooms?

Type	Classroom	Office	Laboratory	Store	Music	Library	Latrines	Others
------	-----------	--------	------------	-------	-------	---------	----------	--------

Number								
---------------	--	--	--	--	--	--	--	--

14) What is the available source of water?

- a) General network b) Village-well c) School-well d) Hafeer
 e) Hand pump f) Non

15) Is water from this source available today?

- a) Yes b) No

16) What is the available source of electricity for the school?

- a) General network b) Facility generator c) Village generator d) Solar
 cell e) Non

17) Is this source of electricity available and working today?

- A) Yes b) No

18) What are the actual hours of the school operation?

Section (2): Staff information:

19) What is the total number of the current teaching staff in the school?

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20) How many permanent staff of each category does the school have?

- a) Class teachers.
 b) Subject teachers.
 c) Specialized teachers
 d) Others (specify).....

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21) What is the distribution of the teaching staff by sex?

- a) Males
 b) Females

--	--

22) How many of the staff is not present today for duty?

--	--

23) What is the distribution of absent staff by sex?

- a) Males.
- b) Females

24) What are the reasons for the absence of the staff members?

- j) Sick leave.
- k) Travel to the state Ministry of Education.
- l) Travel to the Federal Ministry of Education.
- m) Travel to the locality
- n) Annual leave.
- o) Training.
- p) No reason

25) For the last month when did the teaching staff receive their salaries?

- f) Before the end of the month.
- g) Not yet received.
- h) Within one week after the end of the month.
- i) Within 4 weeks after the end of the month.
- j) More than 4 weeks.

26) How many teaching staff received in-service training during the last two years?

- d) Non
- e) 1-5
- f) More than 5

27) When was the last supervisory visit conducted by the technical supervisory team?

- f) Within the last month.

- g) Within the last three months
- h) Within the last six month.
- i) More than six month.
- j) Not conducted.

28) How many members of the technical supervisory team visted the school for the last visit?

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29) How many hours did the technical supervisory team spend in the school during the last visit?

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30) What is the magnitude of the technical supervision during the lst year?

- a) All the subjects
- b) Half of the subjects
- c) Less than half of the subjects

31) When was the last supervisory visit conducted by the administrative supervisory team?

- a) Within the last month.
- b) Within the last three months
- c) Within the last six month.
- d) More than six month.
- e) Not conducted.

32) How many members of the administrative supervisory team visted the school for the last visit?

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33) How many hours did the administrative supervisory team spend in the school during the last visit?

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Section (3): Financing of the school:

34) What are the main financial sources of the school?

- e) Budget from the state. 1) Yes 2) No
- f) Budget from the locality. 1) Yes 2) No

g) Pupils' fees. 1) Yes 2) No

h) Contributions by the community. 1) Yes 2) No

e) Others (Specify).....

35) For the last year did you receive the allocated budget from the locality?

a) Yes b) No

If the answer to question, "34" is "No", skip to question "37"

36) When was the first budget release from the locality received by the school last year?

- a) At the beginning of the year.
- b) Within the first three months.
- c) Within the first six months.
- d) More than six months.
- e) Never.

37) Which proportion of the allocated budget you received?

- a) Less than 10%.
- b) 10% to 49%.
- c) 50% to 89%.
- d) 90% to 100%

38) Did the school ever receive transferred budget from the State Ministry of Education during the last year?

a) Yes b) No

39) If the answer to question "37" is "yes" What is the amount received in Sudanese Dinnars?

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40) Did the school receive any supplies/educational materials from the Federal Ministry of Education last year?

a) Yes b) No

41) If the answer to question "39" is "Yes" Which?

a)b).....

c).....d).....

e).....f).....

42) Who is responsible for approval of the financial requisition within the school?

a) The school director.

b) The school accountant.

c) A school employee.

d) Others (specify).....

43) What were the total expenditures in Sudanese Dinnars (all sources) in the school last year?

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Section (4): Users’ fees:

44) Do the pupils have to pay the school fees?

a) Yes b) No

45) Which fees the pupils have to pay?

a) Tuition fees. 1) Yes 2) No

b) Books & other teaching aids. 1) Yes 2) No

c) Water and electricity. 1) Yes 2) No

d) Examination fees. 1) Yes 2) No

e) Private tuition 1) Yes 2) No

46) How much did you quantify the amount paid by each pupil during the last year in Sudanese Dinnars?

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47) How many pupils were exempted from paying the fees last year?

48) What are the criteria for exempting pupils from paying fees?

- a) According to the judgment of the director. 1) Yes 2) No
- b) Poor pupils are exempted. 1) Yes 2) No
- c) The administrative unit at the locality decision. 1) Yes 2) No
- d) The parent's council decision 1) Yes 2) No

49) How much the pupil should pay in SD for:

- a) Entry registration fees.
- b) Examination fees per year.
- c) Water & electricity per month.
- d) Teaching materials
- e) Basic school certificate fees
- f) Secondary school certificate fees

50) How the collected fees at the school level are being managed?

- a) All the collected fees are to be delivered to the administrative unit at the locality level.
- b) A specific portion of the collected fees is being retained by the school for operating cost.
- c) All the collected fees are being retained and managed by the school.

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