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I. INTERNSHIP REPORT

1.1.0 ORGANIZATION PROFILE

ICRA Limited (formerly Investment Information and Credit Rating Agency of India Limited) was set up in 1991 by leading financial/investment institutions, commercial banks and financial services companies as an independent and professional Investment Information and Credit Rating Agency. The international Credit Rating Agency Moody's Investors Service is ICRA's largest shareholder.

The participation of Moody's is supported by a Technical Services Agreement, which entails Moody's providing certain high-value technical services to ICRA. Specifically, the agreement is aimed at benefiting ICRA's in-house research capabilities, and providing it with access to Moody's global research base.Today, ICRA and its subsidiaries together form the ICRA Group of Companies (Group ICRA). ICRA is a Public Limited Company, with its shares listed on the Bombay Stock Exchange and the National Stock Exchange.

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ICRA Management Consulting Services Limited (IMaCS), a wholly-owned subsidiary of ICRA Limited, is a multi- line consulting firm with a global operating footprint. IMaCS offers Consulting Services in Strategy, Risk Management, Regulatory Economics, Transaction Advisory, and Process Re-engineering. IMaCS' clientele includes Banks & Financial Service Companies, Corporate Entities, Institutional Investors, Governments, Regulators, and Multilateral Agencies. Besides India, IMaCS has consulting experience across 35 countries in South East Asia, Northern Asia, West Asia, Africa, Western Europe, and North America.

I 'am appointed as onsite consultant in IMaCS. The project is to give technical support and onsite Consultancy at Community Health Centre, Kurud; Community Health Centre, Bilha; Civil Hospital, Khairagarh and Community Health Centre, Manendragarh

1.1.1 HOSPITAL FACT SHEET - BILHA

NAME OF THE INSTITUTION:	COMMUNITY HEALTH CENTER, BILHA
Date of foundation	Data not available
Year of inception:	1995
Size of hospital (no. of inpatient beds):	30
Scope of services:	General hospital
Name of owner entity:	Government of Chhattisgarh
Status of owner entity:	State Government
Block Medical Officer:	Dr. C.P. Agarey
Registered office/address:	Community health center, Bilha, district Bilaspur
Other associated hospitals/ institutions:	District Hospital BILASPUR, CIMS Bilaspur
Future plans:	• Construction of drug store room. • Construction of waiting hall for relatives • Construction of boundary wall.

TABLE 6: HOSPITAL FACT SHEET - BILHA

1.1.2 HOSPITAL FACT SHEET - KURUD

NAME OF THE INSTITUTION:	COMMUNITY HEALTH CENTER, KURUD
Year of inception:	14th June 2002
Size of hospital (no. of inpatient beds):	30
Scope of services:	FRU
Name of owner entity:	Government of Chhattisgarh
Status of owner entity:	State Government
Block Medical Officer:	Dr. Navaratan
Registered office/address:	Community health center, Kurud, Dhamtari
Other associated hospitals/ institutions:	District Hospital Dhamtari.

Future plans:	• Construction of drug store room. • Construction of kitchen.

TABLE 7: HOSPITAL FACT SHEET - KURUD

SERVICES PROVIDED BY THE HOSPITAL – KURUD

Core Services			
Out Patient Services	In Patient Services		
Daily: General Medicine, Obstetrics and Gynecology, Ophthalmology			
Support Services			
Laboratory Services:- **Clinical Pathology**	Radiology		
	ICTC		
	Immunization		
	Leprosy Centre		
	Family Planning		
	Malaria Centre		
	Central Medical Stores		
Utility & Support Services			
In House			
Laundry Services	Security Services	Housekeeping services	TSSU
	Medical Records Department		

TABLE 8: SERVICES PROVIDED BY KURUD HOSPITAL

1.1.3 HOSPITAL FACT SHEET – KHAIRAGARH

Name of the Institution:	**CIVIL HOSPITAL, KHAIRAGARH**
Year of inception:	1947
Size of hospital (no. of inpatient beds):	50
Scope of services:	General Hospital
Name of owner entity:	Government of Chhattisgarh
Status of owner entity:	State Government
Block Medical Officer:	Dr. Ashok Botke
Registered office/address:	Civil Hospital, Khairagarh, Rajnandgaon
Other associated hospitals/ institutions:	District Hospital, Rajnandgaon

Future plans:	• Construction of water reservoir • Renovation of IPD • Construction of emergency department and MRD

TABLE 9: HOSPITAL FACT SHEET - KHAIRAGARH

SERVICES PROVIDED BY THE HOSPITAL - KHAIRAGARH

Details of Services	***Availability of Services***	Description
OPD Services	Daily basic specialty OPD	• Ophthalmology
	Immunization services	• Vaccines are provided free of cost for all children(BCG, DPT, OPV, Measles, DT, TT and Hepatitis B) EVERY TUESDAY
	Weekly	• USG
	Family welfare services	• Contraceptive, Counseling services are available free of cost
Casualty Services	24 Hours every day	• Services for medical, surgical, labour and road traffic casualties
Indoor Services	24 Hours every day	• Open all times, doctors available on call.
Support services	Till 11 a.m. (Normally)	• Laboratory services(Tests in hematology, RUE besides microscope facility), X-Ray services, USG, OT Room, Pharmacy services, Ambulance services

TABLE 10: SERVICES PROVIDED BY THE HOSPITAL - KHAIRAGARH

1.2. REPORT OF MANAGERIAL TASK:

- ✓ Mapping the As-Is Process
- ✓ Identifying the resource and process gaps
- ✓ Developing documents in line with the ISO requirements
- ✓ Developing systems for continuous evaluation, monitoring and control

1.3 LEARNING DURING INTERNSHIP

- ✓ About Government health care delivery set up.
- ✓ Role of SHSRC and NRHM in health care delivery.
- ✓ Process mapping of district hospitals and CHC's.

II. DISSERTATION REPORT

CHAPTER 1

2.0 INTRODUCTION

It is rightly said that India lives in its villages. About 78% of the population of the country lives in rural India. The country has the dubious distinction of being the 2nd largest populous country in the world. The flip side is that in spite of being a vast country having a huge population of 108 crores the health status of the country is very poor. As evidenced by the World Health Report, the health indicators are far inferior to its neighboring developing countries. Health being a state subject the government has a very well structured public health system.

The three tier level of health-care organization with the root at the level of primary health centers going through CHCs, DHs and tertiary centers like medical colleges and centers of excellence like AIIMS, PGI etc. In spite of all this, the reach and acceptance of the facilities particularly in the PHCs and CHCs is very poor.

Several studies have revealed that the community prefers to go to a private provider and pay out of pocket rather than going to a public facility even though it is free. This is evidenced by the fact that the GDP on account of health is 5.2% out of which the share of the Government is only 1.8% and the rest is from the private providers (***World Health Report***)

Health care in India is a sunrise sector and the country is witnessing a mushrooming of corporate hospitals being ironically concentrated at the Metropolitan cities with a focus on the international health business. At the end the rural sector is left untouched even if the population is ready to pay.

Govt. has taken a revolutionary step in the form of National Rural Health Mission (NRHM) and furthered it by laying standards for the same in the form of IPHS 2006. The results of this program are to be seen in the years to come.

The basic issue is to regain the trust of the community on the public health facilities.

The areas of concern in order to achieve the trust is

- ✓ Accessibility
- ✓ Availability
- ✓ Affordability

- ✓ Affability

The objectives of the Community Health Centers are:

1. To ensure availability of comprehensive quality health care accessible to all without any discrimination or bias.
2. To provide the services round the clock 24/7.
3. To enable access of the services to the community at an affordable price.
4. To run the facility in a transparent manner so as to create an environment of empowerment and ownership of the community.
5. To provide value for money to the consumers of health care.

So the primary duty of any hospital is to care for the sick and the suffering so that they regain their health speedily. This function can be carried out with greater effect with the assistance of certain facilities, the foremost of which are the building, water and electricity supplies, sanitation and excellent environment all round. The engineering and allied services comprise of the following:

- ✓ Civil assets
- ✓ Electricity supply
- ✓ Water supply
- ✓ Steam supply
- ✓ Air conditioning and refrigeration
- ✓ Engineering services department
- ✓ Transportation system
- ✓ Medical gases

2.1. CIVIL ASSETS

Apart from the land on which the hospital premises stand, the hospital buildings and several others that serve it, the road and pathways, and the general environment created around the buildings bounded by the compound wall, which are considered the Civil Assets of the Hospital, electricity supply, lighting, ventilation, water supply, plumbing and fittings, public health services as a part f the building. Modern hospitals are invariably provided with lifts and dumb waiters, telephones and communication arrangements, TV and music systems are best known as internal services.

2.1.1 LAND

According to the Indian standards, the total area to be provided for a hospital complex shall depend on the availability of land. It is also recommended for guidance and area of one hectare (10,000 sq. meters) for every 25 beds. Efforts should be made for easy accessibility of Hospitals for public and supporting staff.

2.1.2 HOSPITAL BUILDINGS

Providing shelter and protection to numerous human beings, and providing platform for efficient and safe working of sensitive equipments is utmost important function of a hospital building, which makes it unique. A compact, multi-departmental hospital building is expected to provide atleast basic amenities to patients and their attendants. Thus, placement of departments in a correct and efficient manner becomes necessary. Improper planning would lead to wastage of space and movement-time.

About 30% of the total floor area is taken up by corridors and passages, entrance halls, stair cases and lift lobbies inside hospital buildings as they have to be wide enough to allow smooth trolley and wheel chair movement.

Major problems can arise in future if provisions for expansion and renovation are not made during the planning phase. It is almost certain that these would be needed in the long run.

2.1.3 INTERNAL ELECTRIFICATION AND LIGHTING

Internal electrification supplies electricity for lighting and ventilation purposes and for socket outlets which are sometimes called as convenience outlets or equipment outlets. One lighting circuit can be loaded with 10 lights and fan points provided their total load is less than 800W.

Similarly one power circuit can be connected to two 16 amps socket outlets, each to cater for a 1000W load, but the total load for both should not exceed 1800W. It is dangerous if power socket outlets are used carelessly. They should never be loaded to full extent. High power equipments like sterilizer or heater should be controlled by MCBs, which trip in case of an overload, and thus safe-guarding the electrical connections and connected equipments.

Although aluminum cables are cost-effective, copper cables provide better contact and continuity, and thus, should be preferred for use in hospitals. Fire Retardant Low Smoke (FRLS) PVC cables provide fire safety, and could be preferred. Concealed conduit for internal wiring is the best practice in hospitals. Steel conduit is better than PVC conduit which is susceptible to damages later on if someone drives a nail into the wall. Loose and dangling wires should be highly avoided in hospitals. If required, the wiring should be done properly as per standard practice.

Providing reading night lights to general lighting and special lighting arrangements in operation theatres with shadow-less lights, hospitals have extensive and varied lighting arrangements. Amongst incandescent bulbs, fluorescent tubes, mercury vapor lamps, low and high pressure sodium vapor lamps, metal halide lamps and so on, which are different light sources, Incandescent lamp is best avoided as it has poor efficiency, short life and more often than not gets stolen. Fluorescent light is a good choice for use almost anywhere and has a long life with better efficiency. Mercury vapor lamp does not possess good light rendering and may be considered for use in laundry, plant rooms, workshop, parking lots and such like places. Sodium vapor lamp gives yellowish lights and could be used in external surroundings, as its efficiency is very high. Metal halide lamps give good color rendering with high efficiency but are quite costly and life expectancy is also very poor. Illumination levels for some nursing facilities as per international practices are indicative in the table given below:

Area/Activity		Illumination values	
		Lux	Foot Candles
Administrative: Office, Medical Records, Conference Room		500	50
Lobby	General	200	20
	Reception	300	30
Waiting Area	General	200	20
	Reading	300	30
Corridors	Nursing Areas-Day	200	20
	Nursing Areas-Night	100	10
Resident Room	General	150	15
	Reading/Bed	300	30
	Toilet	300	30
Resident Lounge	General	150	15
	Reading	300	30
Resident Dining		300	30
Toilet, Shower, Bath		300	30
Nursing Station	General	300	30
	Desk	500	50
	Medication Area	500	50
	Corridor-Day	200	20
	Corridor-Night	100	10
Storage, General		200	20
Utility, Clean or Soiled		300	30
Dietary		500	50
Examination Room		500	50
Physical Therapy		300	30
Stairways		150	15

TABLE 11: ILLUMINATION LEVELS FOR SOME NURSING FACILITIES AS PER INTERNATIONAL PRACTICES

2.1.4 VENTILATION

Ventilation is obtained by ceiling, bracket (wall mounted) or by pedestal fans and by exhaust fans. Combination of natural and forced ventilation can be adopted in hospitals. For example – natural supply and natural exhaust, natural supply and forced exhaust, forced supply and natural exhaust or forced supply and forced exhaust. If no products of combustion or anesthesia gases or other contaminants are involved, than the following air changes recommended in Indian standard can be adopted:

AIR CHANGES	
Space	**Air changes per hour**
Operation Theatre	15-20
Wards	8-12
Bathroom and toilets	6-12
Kitchen	6-9
Laundry	10
Non Air-conditioned Areas	8-10

TABLE 12: RECOMMENDED AIR CHANGES

2.1.5 INTERNAL WATER SUPPLY

The roof-top water tanks in hospitals have to supply water under pressure to pre-assigned locations, for which they have to be placed at proper planned location. Water tanks need periodical cleaning and upkeep. Sufficient storage capacity should be planned to provide water supply through-out the day. Unused water tanks would result in stagnation and deteriorated storage. A defective/improper distribution pipeline system would cause problems like continuously low pressure, low pressure when another tap is opened for use, air locks, etc. The entire system should be well balanced so that water at the right pressure is available round the clock on all the floors at all points of use.

A major problem with pressure pipelines is leaks. These have to be considered as serious in case of hospitals. When pipeline is empty, outside contamination can easily slip into the pipeline and

cause havoc. A leaky pipeline inside the hospital building will cause dampness and unhygienic conditions.

Other problems which give rise to complaints are as follows:

a) **Dry taps**: Inadequacy of water is a major concern so conservation of water, stoppage of leaks and misuse of water should be checked.
b) **Low pressure at tap outlet:** A bucket takes a long time to fill. A partial pipeline block or a partially open valve could be the reason.
c) **Low pressure at a tap outlet when another tap is opened:** This indicates an adequacy of pipeline carrying capacity and is difficult to overcome without carrying out changes in distribution system.
d) **High pressure at tap outlet:** high pressure lead to splash of water thus resulting in wastage. A pressure reducing valve or restriction should be there in pipeline to reduce the pressure.
e) **Muddy water issues from tap**: This commonly occur during monsoon seasons and when storage tank is dirty. This requires filtration of water and filters are used in main pumping.
f) **Chlorine smell in water:** it results due to over chlorination of water in treatment plant. This can be checked by use of chlorine water in treatment plant, otherwise de-chlorination by chemical or physical treatment can be carried out.
g) **Leaky tap**: the drip –drip tapping noise could be most annoying to the sick people and this can be prevented if maintenance staff is alert.

Hot water is essentially required in areas like wards, OT, intensive care unit, laboratories, kitchen, laundry and other such departments. Basically a hospital requires water at two temperature levels- the lower level not exceeding 43^0C and higher level of not less than 71^0C.

It is difficult to access the requirement of hot water in case of hospitals, because hot water is mixed with cold water before use. The mixing proportion depends upon the particular user. The possible hot water requirements in hospital are given in table below.

POSSIBLE HOT WATER REQUIREMENT	
Patients	30liters per bed per day
OT	As required basis, but likely to be 5 liters per bed per day
Physiotherapy	Nominal, say 500 liters per day
Laboratories	As required basis, but likely to be 1000liters per day.
Laundry	As required basis, depending on equipments requirement to be decide with equipment supplier. It could be 50liters per bed per day.
Kitchen	10 liters per bed per day if disposables are not used(water at higher temperatures)
Attendants and visitors of patient	Depends upon policy if hospital about permitting their presence. If permitted it could be Attendants – 15 liters per bed per day Visitors – 3liters per bed per day.

TABLE 13: POSSIBLE HOT WATER REQUIREMENTS IN HOSPITAL

Cold water supply is needed for processing tanks in film developing room and also cold drinking water is necessary that can be obtained by use of storage type water coolers. Waste water from water coolers need to be drained and spitting into this drain should be discouraged. Notice should be displayed prominently that water is for drinking purpose only and not for washing or brushing. Spot water purification unit is advisable for use. Water coolers must not be placed against walls where adequate ventilation to chilling equipment is not there, and also not near the toilet for hygiene reasons and to prevent misuse for washing purpose after toilet.

2.1.6 PUBLIC HEALTH SERVICES

It is necessary for a hospital to have adequate toilet facility with excellent level of hygienic condition. Misuse and abuse cause blockages, while lack of water supply cause dirty toilets. Flushing cistern should be function all at all times as it generates the requisite rush of water strong enough to keep the water seal near the toilet seat frère of faeces. Otherwise stagnant faeces in the water seal will soften into slime and form a coating on the pipe surface, ultimately chocking it. Manual flushing is wasteful and un-effective. Backflow, which usually occur during monsoons, should be avoided at all costs.

Sewer lines blockage is a frequent occurrence and a major problem in a hospital. The clogging process occurs gradually and is difficult to detect till the blockage is complete and the toilet gets flooded causing the greatest inconvenience.

Organized regular maintenance of entire system considerably reduces any chance of blockage, thereby reducing unwanted efforts of locating and clearing the problem.

Septic tanks and soakage pits are answers for rural hospitals, where benefit of municipal sewage line is absent. But, these require large area, and require greater attention for maintenance. Hospital effluents which are discharged into sewers without terminal sewage treatment facilities or not connected to public sewage system should conform to the following norms as under:

HOSPITAL EFFLUENT NORMS	
Ph	6.5 to 9.0
Suspended solids	100 mg/liter
Oil and grease	10 mg/ liter
BOD	30 mg/ liter
COD	250 mg/ liter
Bio-assay test	90% survival of fish after 96 hours in 100% effluent

TABLE 14: HOSPITAL EFFLUENT NORMS

This may necessitate sewage treatment by the hospital itself to comply with the regulations.

2.1.7 LIGHTINING PROTECTION

Due to paucity of land space building are nowadays going for vertical expansion therefore; tall buildings are vulnerable to lightning strikes which could cause serious damage to the building and costly equipments inside it. Therefore protection against lightning strikes is to be provided. This system simply affords to the lightning an easy resistance free metallic path to the earth so that the building does not have to bear the brunt of providing a passage to the massive electricity. It is mandatory to check the continuity of earthing system resistance at regular intervals.

2.1.8 LIFTS AND DUMBWAITERS

All hospitals with more than one storey must have lifts for vertical transportation of patients, staff, visitors and supplies. Hospitals have passenger lifts, bed [or stretcher] lifts and sometimes goods lift. Material used for inside finish of the lift cage should be washable. The recommended speeds for bed as per Indian standards are given on nest page:

SPEEDS OF TRAVEL FOR BED LIFTS		
Travel	**No. of Storey's**	**Car speed, meter / second**
Short travel lift	2 or 3	0.25
Medium travel lift	4 or 5	0.50
Long travel lift	6 and over	1.00

TABLE 15: SPEEDS OF TRAVEL FOR BED LIFTS AS PER IPHS

Passenger lifts should be easily accessible and preferably located near staircases. Hospital lifts should be placed near the wards and operation theatre department entrances. Lifts should have power supply from mains and from stand-by generating sets.

Lifts should be subjected to load tests and a thorough inspection, and certified to be in conformity with safety regulations and codes before it is taken into services. There after they should be maintained at the highest degree of perfection and got inspected at regular intervals.

Dumbwaiters are small box type elevators used for transporting stores from one floor to another. Separate dumbwaiters should be earmarked for vertical movement of sterile items and non-sterile

items. These have a travel speed of about 1000mm X 1000mmX 1200mm. “In Use” and “Car Here” indication lights are provided at all floors.

2.1.9 STRUCTURED CABELING

Communication system should be adequately designed for alerting all persons charged with patient care and all employees in emergency. Computer aided management system has become inescapable as it has the following attributes:

- ✓ System is accurate and error free.
- ✓ System can process and analyze a large volume of data in a short time and the present the result in the desired way or format.
- ✓ It can do the above from a single or multiple source of information stored in the memory bank.
- ✓ System can retrieve any data in a short time.
- ✓ Operators at different work stations have a direct access to all information through remotely located terminals.
- ✓ System can store and transmit large volumes of data at high speed.

A good management information system and a constant evaluation of hospital activities are essential tools for management a hospital effectively and efficiently.

2.1.10 INTELLIGENT BUILDINGS

It is no longer enough for building to be just beautiful. It will have to be intelligent also if it wants to be modern with a futuristic outlook. With the power tariffs going up and up, and labor costs soaring, any building of considerable size and varied usage will have no choice but to “act intelligently “ at all times, even when it is vacant.

An “***intelligent building”*** is one that is designed to anticipate the needs of the owner and the occupant, and possesses the ability to *“learn”, “think fast”, “apply knowledge”* and *“act fast”.*

A few of the functions can be explained as follows:

- ✓ Switch off or on lights, start or atop the fans and ACs depending on the presence or absence of the user.

- ✓ Balance artificial lighting level with natural light infiltrating into a space to provide the desired illumination level.
- ✓ Adjust air conditioning effect based exactly on load conditions.
- ✓ Operate and monitor security systems like closed circuit cameras and activate motion detection system only at night.
- ✓ Switching on or off security, perimeter or area lighting as programmed.

2.1.11 HOSPITAL ROADS, PATHWAYS AND DRAINS

Hospital roads should be wide enough with sufficient turning radius at bends so that delivery trucks, fire engines and tenders can use them. Hospital roads should fulfill the requirements specified by the local fire authorities. They should be planned to make traffic movement safe and less noisy. Traffic control should be easy. Blind corners are avoided. Direction signs should be prominently displayed to reduce the traffic confusions.

Access road to emergency department should be well marked. Entry and exit directions should be clearly marked and well defined. Water logging should not occur at any point in the roads and pathways, especially those leading to emergency. Roads footpaths and pathways should receive due importance in maintenance and upkeep, especially soon after the monsoon period when they are most likely to have suffered extensive damage.

Roadside drains should be very well planned, executed and maintained to ensure speedy disposal of rain water and to prevent water-logging which will become a source of mosquito breeding and rotting matter that could generate cross-infection problems. Covered drains should be preferred in hospitals against open drains which could cause injuries and accidents.

2.1.12 HORTICULTURE, ARBORICULTURE AND LANDSCAPING

A good hospital should have pleasing surroundings which present a welcoming appearance to the patient and visitors.

Horticulture is the art of garden cultivation resulting in a variety of flowers.

Arboriculture is the scientific cultivation and management of trees and shrubs which includes varieties of forest timber, fruit trees and ornamental woody plants.

Maintenance of garden and, flowers beds, trees and hedges and lawns should be a concern of hospital authorities. Trees are great assets in reducing the dust and noise.

2.2 ELECTRICITY SUPPLY

2.2.1 SOURCES OF SUPPLY AND STANDARD VOLTAGE

Ideally, electric power should be obtained from State Electricity board (SEB). In case of hospitals, where power failures are unacceptable, power should be obtained from at least two independent sub-stations of SEB. This increases reliability. An agreement with SEB for obtaining power will have to be entered into. Payment for electric power consumed will have to be made.

In single phase two-wire system, the standard voltage is 240V. The standard voltages in three phase system are 0.415, 3.3, 6.6, 11, 22 and 33kV.

Hospitals require a great amount of power. This could be as high as 6 to 8 kV per bed depending upon the size and status of the hospital. Supply voltages for different loads are given below:

Power kVA	Upto 100	1001 to 1000	1001 to 2000	1001 to 3000	Above 3000
Supply voltage, KV	0.415	6.6 or 11	11	22	33

TABLE 16: SUPPLY VOLTAGE FOR DIFFERENT LOADS AS PER BIS

2.2.2 ELCTRIC SUB-STATION

When the supply voltage level is above 415 V, the voltage will need to be stepped down before electricity can be used. Transformers of the distribution category will be necessary for this purpose.

Transformers upto 250 kVA capacity can be mounted on a two-pole structure which will be convenient and cheap. Bigger transformer upto 750 kVA will need a four-pole structure, but it is rather difficult to pole mount a transformer above 500 kVA due to its weight. Big transformers can be placed on a suitable concrete base whose height is above the flood level. Indoor type

transformer need suitable covered accommodation. Multiple units should be segregated by a wall of four hour fire resistance. As per IS:1869-1967, the clearance should be as follows:

Wall on	One side	Two side	Three side	Four side
Clearance	0.50m	0.75m	1.00m	1.25m

TABLE 17: WALL CLEARANCE FOR TRANFORMER

Good ventilation enables the transformer to dissipate heat and thereby perform better.

Substation is the electric power receipt and dispersal point. It is required for stepping down the supply voltage to the level of 415 V and for distributing the power to the various departments of the hospital.

2.2.3 SWITCH BOARDS AND POWER DISTRIBUTION

A hospital distribution is likely to have the following:

- ✓ HT side of sub-station (6.6 kV and above)
- ✓ LT side of sub-station (about 433 V)
- ✓ Main LT distribution panels(s)
- ✓ Distribution boards [DB] and sub-distribution board.
- ✓ Points of consumption.

2.2.4 LOAD SEGREGATION

Continuity of power supply is essential in several cases in a hospital, common examples being the ventilator and monitor, operation theatre, ICU and so on. Equipments are costly and cannot be allowed to remain idle for long periods. Some loads are not so critical, examples being lights and fans in waiting areas, passages etc. therefore hospital loads are generally identified as being ESSENTIAL and NON-ESSENTIAL.

ESSENTIAL LOADS are powered by stand-by generators and in the event of mains failure at which time the NON-ESSENTIAL LOADS do not get supply. By doing so the generator capacity is reduced to a manageable level and the expenses of own generation is also lowered.

In this arrangement, essential loads and non-essential loads will have to be on separate circuits to enable power supply from the generator to reach only essential loads.

2.3 WATER SUPPLY

Provision of water of suitable quality and quantity is one of the most vital requirements of the hospital. Hospital needs supply of cold water, hot water, soft water, distilled water.

2.3.1 SOURCES AND NATURE OF WATER

Sources can be local civic body, own bore wells or dug wells. Water supplied by the civic body is pre-treated and safe for human consumption. Water from bore wells and dug wells should be used with utmost care. These are highly susceptible to surface contamination and could start water borne diseases.

QUALITY ASSESSMENT

Water should be regularly tested for bacteriological load. The water analysis report should include:

a) Physical characteristics, i.e. turbidity, color, odor.
b) Chemical characteristics like following:
    i. Chlorine absorption – ppm
    ii. Reaction (acid or alkali) – pH value
    iii. Total solids – ppm
    iv. Ammonia
    v. Nitrites – if present water should be condemned unless it can be positively proved that the nitrites are a result of nitrates by inorganic substances.
    vi. nitrates
    vii. Hardness [temporary or permanent]
c) Bacteriological content, number of bacteria present per milliliter of water following incubation at 37^0C for 24 hours in McConkey broth.

d) Finally a statement that water is fit for drinking without further treatment.

QUANTITY ASSESSMENT

Arrangement should be made for round the clock piped water supply along with an overhead water storage tank with pumping and boosting arrangements. Approximately 10000 liters of potable water per day is required for a 100 bedded hospital. Separate provision for fire fighting and water softening plants should be made available. The hospital water requirement is stated in the table given on next page:

HOSPITAL WATER REQUIREMENTS [*including laundry*]	
Categories A & B [25 to 100 beds]	350 liters per bed per day
Categories C [101 to 300 beds]	400 liters per bed per day
Categories D & E [301 to 750 beds]	450 liters per bed per day

TABLE 18: WATER REQUIREMENTS AS PER IS:10905(part 3)-1984

2.4. MAINTENANCE OPERATION

All items that are produced or procured undergo deterioration while working or standing idle and will need maintenance for their upkeep. Maintenance is an integral part of efficient and reliable functioning of any item, be it a civil asset like building or mechanical or electronic one.

Proper maintenance operations are vital in a hospital which depends heavily on its buildings, bio-medical equipments and engineering services in caring for sick and in health care delivery. Maintenance can only be sustained by quality stores on time. These two are therefore related issues.

2.4.1 MANTENANCE CATEGORIES

Maintenance consists of those activities as are required to keep an asset in ***"as built"*** condition so that it continues to possess its original characteristics.

Maintenance results in the asset being available for intended use at minimum cost, functioning at or near agreed standards with minimum waste.

Maintenance functions can be considered as follows:

- ***1. Routine maintenance:*** Regular or cyclic operation recurring periodically. Defects that develop gradually will be discovered and eliminated.
- ***2. Planned maintenance:*** its pre-planned action carried out with fore-thought and with knowledge of the equipment. Based on recommendations of the equipment supplier. Periodic services like white-washing, cleaning of water storage tanks, touching up of road-sign boards etc come under this category. It involves administrative approval and support, adequate budget and a systematic procedure for implementation.
- ***3. Preventive maintenance:*** this pertains to critical system maintenance to reduce the possible risk of failures to a minimum. Parts and sub-types which are suspected to be unreliable are replaced before they actually fail, thus ensuring high reliability but at extra cost.
- ***4. Breakdown maintenance***: its repair maintenance and the basic concept is not to do anything until the equipment ceases to function. The result is wastage of time, energy and money.
- ***5. Predictive maintenance***: keeping the unit under surveillance and continuously monitoring its operation. The health of the unit is gauged. Based on how well the unit is performing and maintenance is carried out.
- ***6. Corrective maintenance***: A time will come when age catches up with the unit which affects its performance. At this stage, maintenance is necessary to restore the capability of the unit to perform satisfactorily.
- ***7. Emergency maintenance:*** This refers to work done on an equipment or facility that involves personal safety, extreme material or monetary loss or severe deterioration. This is an unexpected and unplanned workload requiring prompt notification of occurrence, rapid response and immediate action.

2.5. ENGINEERING SERVICES DEPARTMENT

Hospitals used to be the domain of doctors and nurses, engineers had hardly any role to play in the functioning of the hospital. Technological advancements have opened the health care

facilities to be a home for engineering marvels which facilitate health care delivery in better way. Engineering services consists of 2 types

1. By medical equipments, all equipments used in diagnostic and therapeutic fields of activity connected with health care delivery could be included in this group.
2. Purely engineering services equipment involved in building maintenance, electricity and water supplies, air conditioning and refrigeration, public health services, maintenance of roads and pathways and so on.

Thus we have two types of equipments-one closely associated with patient care, and the other supporting primary equipment and providing amenities to everyone in the hospital.

2.5.1 FUNCTIONAL ASPECT

A comprehensive services department may have the following functional areas:

1. Maintenance and repair of bio-medical equipments.
2. Civil assets up-keep, maintenance and repair
3. Electrical energy provisioning.
4. Water supply and sewerage systems management.
5. Management of air-conditioning and refrigeration services.
6. Responsibility towards fire protection system.
7. General safety and security system.
8. Maintenance and repair of equipments, vehicles and instruments etc.
9. Miscellaneous items as may exist in the hospital.

Physical duties will broadly consist of the following:

1. Maintenance of assets including periodical services.
2. Repair and renovation of equipment and systems.

2.6. TRANSPORTATION MANAGEMENT

Ambulances, like other emergency vehicles, are required to operate in all weather conditions, including those during which civilian drivers often elect to stay off the road.

An ambulance is a vehicle for transporting sick or injured people, to, from or between places of treatment for an illness or injury. The term ambulance is used to describe a vehicle used to bring medical care to patients outside of the hospital or to transport the patient to hospital for follow-up care.

In brief, an ambulance should be:

1. ***Temperature***
    - ✓ The ambulance needs to be able to operate if the exterior temperature is between 0 to 95 F
    - ✓ The interior minimum temperature needs to be maintained at least at 50 F
2. ***Speed***
    - ✓ The ambulance must be able to maintain a sustained speed of 65 mph
    - ✓ The ambulance must be able to pass at 70 mph
3. ***Acceleration*** from 0 to 55 in 25 seconds
4. ***Hills***
    - ✓ The ambulance must be able to travel up a 3 % hill at 55 mph
    - ✓ In additional the ambulance must be able to travel up a 35% hill (steep) at 5 mph
5. ***Fuel***
    - ✓ Range of 250 miles w/o refueling
6. ***Water Crossing*** (fording)
    - ✓ The ambulance must be able to make 3 passes through 8 inches of standing water without flooding at 5 mph for a distance of100 feet
7. ***Width*** less than 96 inches excluding mirrors.
8. Loading ***height*** no more than 34 inches.

9. Must undergo a static pull test.

2.7 LITERATURE SURVEY

S. No.	Article	Type of Study	Author	Place	Methods	Results
1	Study of the engineering maintenance services at AIIMS hospital with a view to asses its adequacy and effectiveness and to develop a module for efficient functioning	Systemic study	S. Marwah; S.K. Gupta; I.B. Singh	India	Interview and discussion; Retrospective study; Prospective study	Budget of the engineering maintenance service grouped into one category. Financial norms laid down by the CPWD for maintenance purpose are different for various type of buildings
2	Hospitals – Planning, Design and Management	Book review	Rajiv Jain	India	A complete reference on planning, design and management of hospitals from start to finish	Present an integrated picture of planning and designing of general hospital. It discuss the subject under sections of services like Administrative, Medical, Nursing, Support, Engineering etc.
3	Hospital Architecture: Emerging Issues and Strategic options; vol. 16, No. 1 (2004-01 –	Systematic view	Shakti Gupta; Sunil Kant	India	Retrospective study	Emerging issues and trends in hospital; buildings. Essentials and present and future requirements. Hospital buildings should be

	2004-06); Journal of AHA					constructed according to health care services to be provided
4	Evaluation of the "exit Proformas" in use at special wards of a Public sector tertiary care hospital; Vol. 12; No. 1(2000-01 -2000-06); Journal of AHA	Journal review	Aarti Verma; R.K. Sharma	India	Retrospective study	Evaluation of hospital services from patient point of view. Patient opinions than review by middle and senior level management, than analyse for improvement of the health care services

CHAPTER 2 RESEARCH METHODOLOGY

Type of study : Descriptive study.

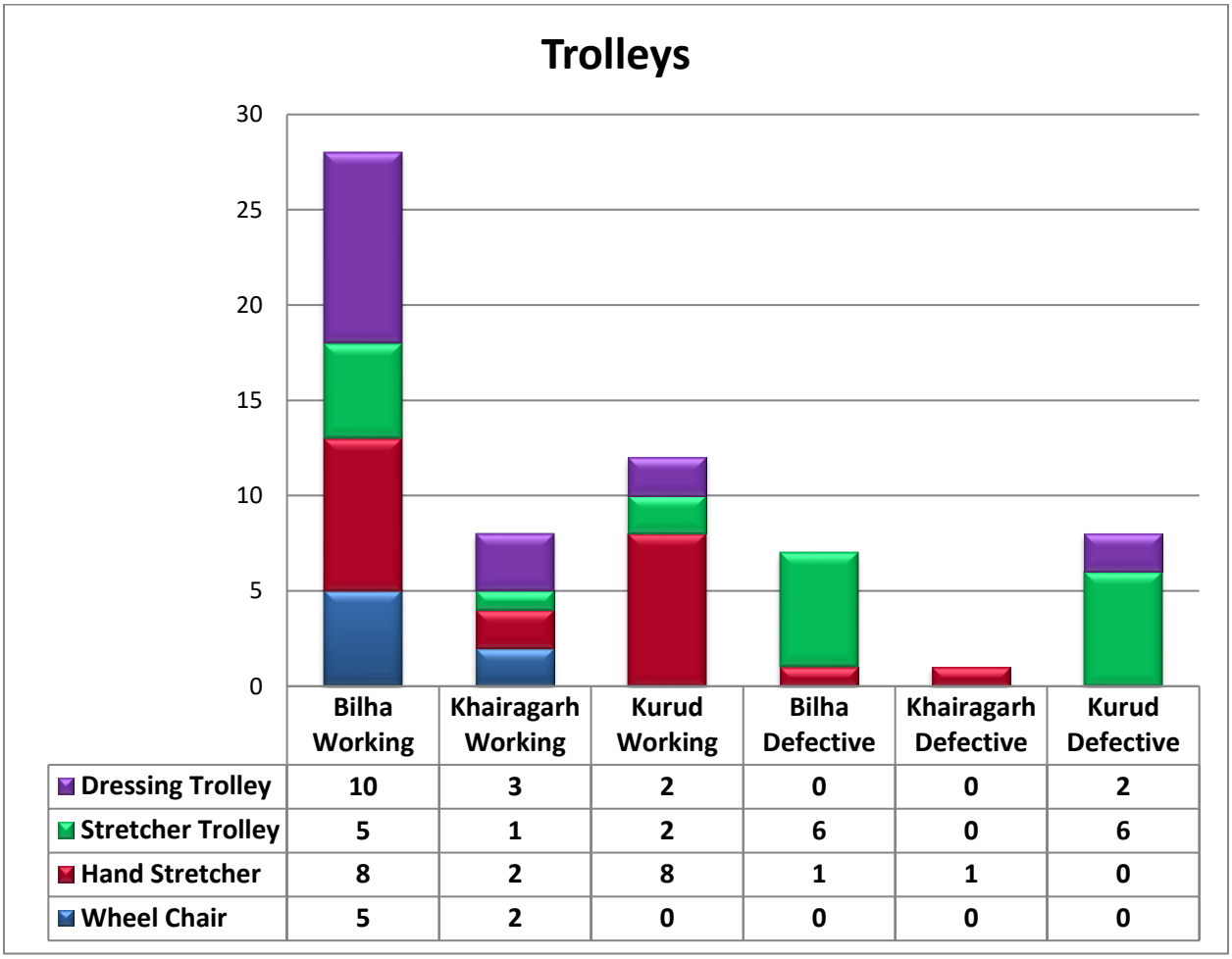
Type of data : Primary data and secondary data.

Data collection : Personal observation of facilities under study for secondary data and primary data from records is collected.

Data analysis : A systemic comparative analysis between the data collected and IPHS standards

Strategy : The study focused on collection of data regarding the existing manpower, equipment, services at the facilities under study. This data collected is compared to IPHS standards. This observational study would lead to useful recommendations and suggestions that would be useful for the hospital engineering services.

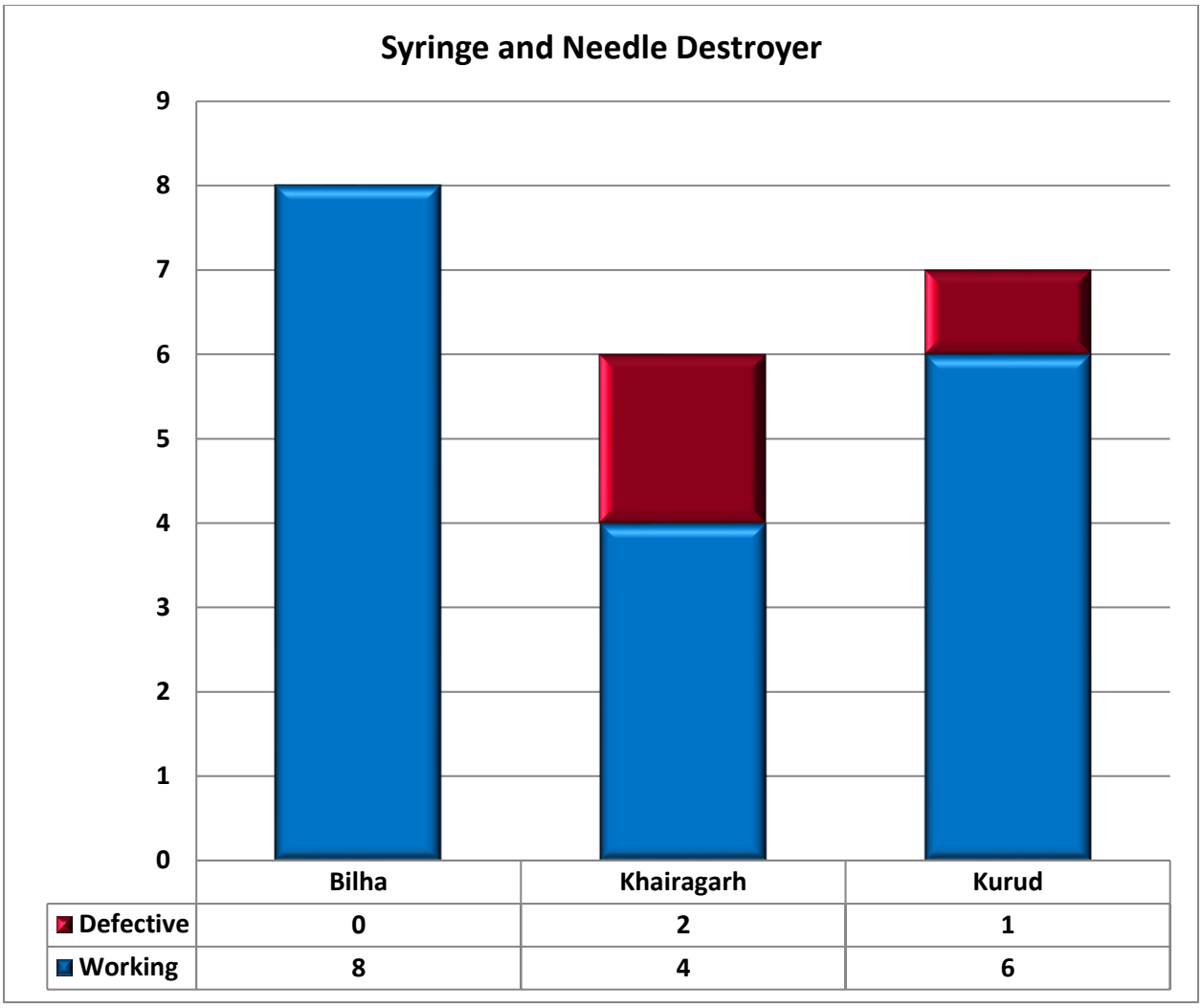
CHAPTER 3 RESULTS AND FINDINGS



	Bilha Working	Khairagarh Working	Kurud Working	Bilha Defective	Khairagarh Defective	Kurud Defective
Dressing Trolley	10	3	2	0	0	2
Stretcher Trolley	5	1	2	6	0	6
Hand Stretcher	8	2	8	1	1	0
Wheel Chair	5	2	0	0	0	0

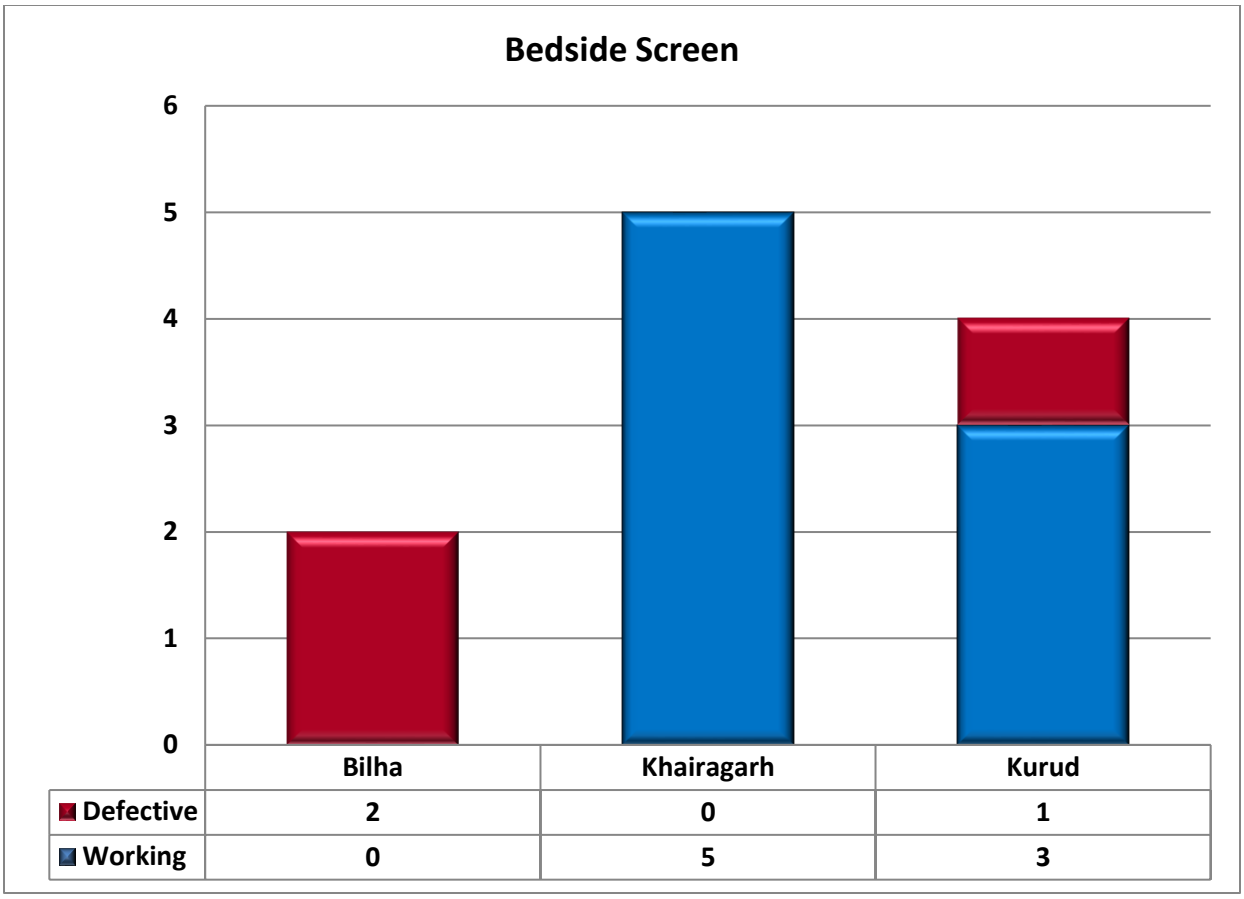
GRAPH 5: TROLLEYS COMPARISION FOR 3 HOSPITALS

Discussion: The graph shows that the CHC Bilha has got maximum number of trolleys and wheelchair. CH Khairagarh got minimum numbers of Trolleys and wheel chair. But the equipments in Khairagarh are better maintained out of 8 only 1equipment is defective.

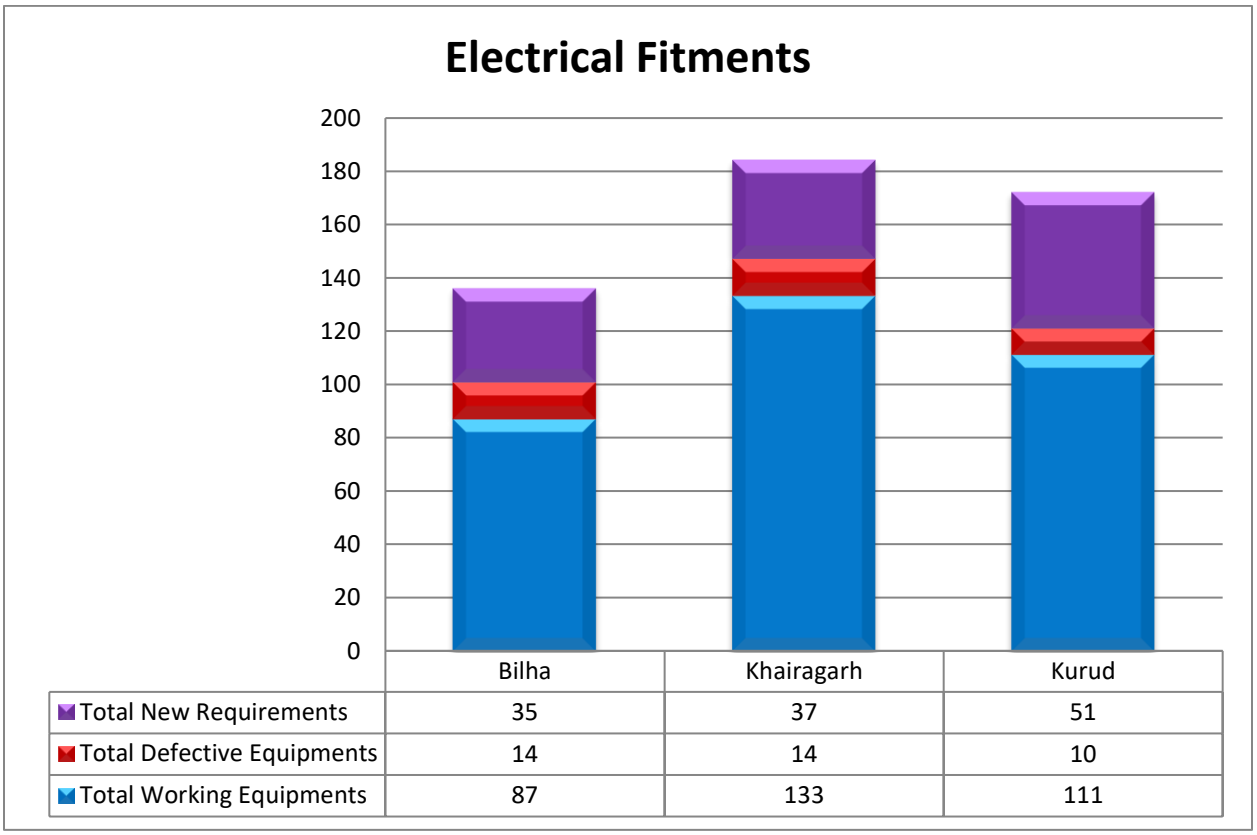


GRAPH 6: SYRINGE AND NEEDLE DESTROYER COMPARISION

Discussion: Bilha has got 8 Syringe and Needle Destroyer and all working where as in Khairagarh 2 out 6 is defective and in Kurud 1 out of 7 are defective.



GRAPH 7: BED SIDE SCREEN COMPARISION



	Bilha	Khairagarh	Kurud
Total New Requirements	35	37	51
Total Defective Equipments	14	14	10
Total Working Equipments	87	133	111

Discussion: In the survey the electrical fitments like switch boards, tube lights, fans, AC, room-coolers, etc department wise were taken. Department included in the survey were – General ware, Paying ward, Hospital stores, x-ray room, USG room, OT, Minor OT, Labor OT. The survey report is attached in the annexure.

The observational study of existing facility shows that CHC's are not having standard hospital engineering services. They do not have any regular appointed staff for the engineering and maintenance services as a result the defective equipments percentage is quiet high.

In the set up the responsibility of maintenance services is of PUBLIC WEFARE DEPARMENT [PWD], but there is no written contract given to PWD by SHSRC.

The grants are given by the SHSRC and NRHM to the hospitals for maintenance purpose but the results are not visible. The following are the revised guidelines for utilization of funds under the category "Annual Maintenance Grant"

ANNUAL MAINTENANCE GRANT FOR CHC / BL.PHC / 24 X 7 PHC / PHCS / SC*

1. Maintenance of physical infrastructure (water, toilets etc)

2. Providing Electricity

3. Painting the centers.

4. Minor Maintenance (curtains, water supply systems, electrical items, minor repairs etc)

5. Repair / Operationalising soak pits

6. Adhoc payments (cleaning up the centre, especially after childbirth)

7. Transport of samples during epidemics

8. Purchase of inverter, generator etc.

Source Reduction Activities

9. Purchase of bleaching powder and disinfectants

10. Labour and supplies for environmental sanitation. (Cleaning or larvicidal measures for stagnant water)

11. Repair / Operationalising soak pits.

12. Making functional existing hatcheries / construct new hatcheries for field release of guppy fishes

Source: Order No. NRHM/Admn/159/2008/SPMSU dated 24.01.2009

The State Health System Resource Centre [SHSRC] release 1lakh rupees for each CHC [block] to Chief Medical Officer at District level, he inurn issue the amount to BMO. National Rural Health Mission NRHM also gives grant of one lakh rupees to Jeewan Deep Samiti as untied funds for maintenance of the hospital.

The hospital lacks in human resource and patient care equipment. The supporting table is listed in annexure.

CHAPTER 4 - CONCLUSION AND RECOMMENDATIONS

In spite of efforts and support from the state and central government the results are not visible at the periphery.

The hospital lacks in human resource and patient care equipment. The supporting table is listed in annexure. The human resource is less as sanctioned therefore the work load on existing employees is more.

The hospital buildings are very old and require renovations.

The maintenance services is the responsibility of the PWD department and the government gives grants also for the job as and when required but still the PWD do not perform its duty. There is no written contract or order for this purpose.

Based on the study and findings I have made following recommendations:

RECOMMENDATION 1

Effective daily management by engineering services department is essential to achieve optimum utilization of men, materials and money. Productive control and economical use of the tradesmen is possible if the following actions are taken:

1. Prepare a work-programme for maintenance tasks and minor works.
2. Prioritize the above programmed according to their importance (consult department heads).
3. Evolve realistic time schedules for the different tasks based on local experience and factors.
4. Maintain accurate job costs records for effective control and future reference.
5. Prepare a work-programme in sufficient detail to ensure even flow of work throughout the year to every tradesman. The annual programmes could be broken down into monthly and then weekly programmes.
6. Maintain clear cut records for computing costs.
7. Learn by experience-the best teacher. Avoid maintenance of repairs as crisis management.

8. Prepare a long term forecast of work such as renovations and expansions, replacements and improvements.
9. Carry out a monthly study of tasks carried out and the cost incurred on each task.

RECOMMENDATION 2

- ✓ Roles and responsibilities of the engineering department should be clearly laid down.
- ✓ Responsibilities and duties of each and every person at all levels should be clearly defined.
- ✓ Check list and repair codes should be clearly established.
- ✓ Safety measures and preventive maintenance should be given prominence.

RECOMMENDATION 3

Its being well said that prevention is better than cure therefore; hospital can plan out ***preventive*** and ***planned maintenance actions*** as stated in the table given below:

- **PREVENTIVE MAINTENANCE ACTIONS:**

ILLUSTRATIVE MAINTENANCE ACTIONS	
ITEM	**PREVENTIVE MINTENANACE**
Exterior walls	✓ Spot minor repairs, Cleaning, Touching up.
Roof	✓ Cleaning, drains, gutters, rain water pipes ✓ Getting rid of bird nests.
Walls, Floors, Ceilings	✓ Spot painting ✓ White washing / touching up ✓ Minor repairs.
Doors, Windows	✓ Replace broken panes ✓ Repair so that they get closed properly.
Storage tanks & Plumbing	✓ Clean strainers, bottle traps, filters. ✓ Repair leaky taps. ✓ Adjust and balance water flows. ✓ Check expansion tanks and pressure vessels. ✓ Check storage tank doesn't get overflow. ✓ Stop pipeline leaks and ensure fluid flows.

Lighting	✓ Replace defective lights. ✓ Check wiring and connections.
Heating and cooling	✓ Check inside temperature and humidity. ✓ Set all control devices properly. ✓ Check gauges.
Road pathways, parking areas, covered and open drains	✓ Spot repair, paint touch-up. ✓ Clean, align kerbs. ✓ Minor repair to pathways and roads. ✓ Clean drains and repair. ✓ Clean grills and replace broken or missing ones.
Trees, flower beds, lawns, hospital grounds	✓ Water, weed, manure, trim, check tree guards. ✓ Make beds clean. ✓ Mow lawn.
Shafts inside building	✓ Eradicate stuffy or foul smell, clean bottom of shaft and shaft walls.

TABLE 19: PREVENTIVE MAINTENANCE

PLANNED MAINTENANCE ACTION

ILLUSTRATIVE MAINTENANCE ACTIONS	
ITEM	**PREVENTIVE MINTENANACE**
Exterior walls	✓ White wash, paint. ✓ Resurface
Roof	✓ Water-proofing ✓ Inspection of vent pipes, openings. ✓ Redoing parapet finishes. ✓ Repair gutters
Walls, Floors, Ceilings	✓ White wash ✓ Resurface, Repair damaged ceiling portions.
Doors, Windows	✓ Paint , Repair, Replace
Storage tanks & Plumbing	✓ Replace dirty or damage pipes. ✓ Clean floor, drains and screens ✓ Drain and clean storage tanks. ✓ Adjust and operate all major control valves. ✓ Paint steel tanks and stop tank leakages.

	✓ Stop leakages from inlet and outlet valves. ✓ Check overflow pipe.
Lighting	✓ Check all lights, modify if necessary.
Heating and cooling	✓ Check inside units, ✓ Clean filters, Check controls, Check complete unit operation.
Road pathways, parking areas, covered and open drains	✓ Check all roadsides signs for correctness and necessity ✓ Repair kerbs, resurface damage portion ✓ Paint as required. ✓ Check all drains for sinking.
Trees, flower beds, lawns, hospital grounds	✓ Plant trees, trim trees and hedges. ✓ Fertilize ✓ Clean grounds of all rotting matter rubbish, garbage etc.
Shafts inside building	✓ Inspect and stop leakage from soil, waste and water pipes. ✓ Replace broken pipes. ✓ Ensure proper anchorage.

TABLE 20: PLANNED MAINTENANCE

RECOMMENDATION 4

CONTRACT MAINTENANCE

This is a system, for an agreed fee, a contractor supplies skilled man-power including

- ✓ supervisory staff
- ✓ necessary spares and tools
- ✓ Equipments required to carry out the maintenance task.

Adopting the system will result in a reduction of permanent staff of the hospital and a consequential reduction in the salaries and other expenses. Several other advantages are also attributed to this system, the most important one being that the contractor can mobilize man-power quickly and in sufficient number to work round the clock in an emergency. This will reduce down time of the equipment or system.

In contract maintenance, care should be taken to ensure that control and supervision are retained by the hospital authorities. In addition to this the hospital should have some skeleton staff to take over the work in case contract maintenance agencies unable to function due to any reason.

CHAPTER 5 – REFERENCES

[1] Bureau of Indian Standards, Recommendations of Basic requirement of general hospital building; Part 1 to 3; IS:10905(Part 1 to 3)

[2] International Hospital Federation, Hospital Management International, 1988; 1994; 1995; IHF 4 Abbot Place, London, UK

[3] Isadore Rosenfeild, Hospital architecture Integrated compound, Progressive Architecture Library; New York; USA.

[4] JCAHO: Accreditation Manuals for Hospital, Vol. 1 Standards, 1995, One Renaissance Boulevard; USA

[5] Vincent K. Omachonu : Total Quality & Productivity Management in health Care organization; ASQC quality press.

[6] Guidelines for Construction and Equipment, The American Institute of Architects, Washington; USA

ANNEXURE 1 – SURVEY REPORT - CHC BILHA

Item	Department	Number	Defective Number	Defect Detail	Remark
Wheel Chair	IPD	0	0	-NA-	Not Issued
	OPD	0	0	-NA-	Not Issued
	OT	0	0	-NA-	Not Issued
	Stores	5	0	-NA-	
Hand Stretcher	IPD	1	1	Torn and Rusted Handles	New Required
	OPD	1	0	-NA-	
	OT	0	0	-NA-	Not Issued
	Stores	7	0	-NA-	
Stretcher Trolley	IPD	1	0	-NA-	
	OPD	1	0	-NA-	
	OT	1	0	-NA-	
	Stores	8	6	Defective Wheels	Repairable (Wheel Replacement)
Dressing Trolley	OT	1	0	-NA-	
	Minor OT	1	0	-NA-	
	Labor OT	1	0	-NA-	
	Stores	7	0	-NA-	

SYRINGE AND NEEDLE DESTROYERS			
Department	Numbers Available	Defective Number	Defect Detail
IPD	1	0	-NA-
Lab	1	0	-NA-
Blood Bank	1	0	-NA-
Vaccination Room	1	0	-NA-
OT	1	0	-NA-
Labor OT	1	0	-NA-
Minor OT	1	0	-NA-
Injection Room	1	0	-NA-

BEDSIDE SCREENS				
Department	**Numbers Available**	**Defective Number**	**Defect Detail**	**Remarks**
IPD	0	0	-NA-	
OPD Clinic	0	0	-NA-	
Labor OT	0	0	-NA-	
Sores	2	2	Defective wheel	Repairable

ELECTRICAL FITMENTS

		GW	PW	LAB	OT	M.OT	L.OT	XRAY	HS
Switch Board	Total Available	11	2	6	13	1	6	4	2
	Defective	5	0	1	0	0	0	0	0
	New Requirement		0		1	1	4	1	1
Tube Light	Total Available	6	2	2	2	0	9	2	2
	Defective	4	0	0	0	0	2	0	1
	New Requirement	5	0		Shadow less Light	2	1	0	
Fan	Total Available	12	1	2	5	1	1	1	1
	Defective	1	0	0	0	0	0	0	0
	New Requirement	5	0	0	0	0	1	1	
A/C	Total Available	0	0	0	2	0	0	0	0
	Defective	0	0	0	0	0	0	0	0
	New Requirement	0	1	1	0	1	1	1	1
Room Cooler	Total Available	5	0	0	0	0	0	0	0
	Defective	0	0	0	0	0	0	0	0
	New Requirement	5	1	1	0	0	0	0	1
Hanging Wire	Total Available	3	0	0	0	0	0	0	0
Open Electrical Panels/Wires	Total Available	2	0	0	0	0	0	0	0

WATER SUPPLY FITMENTS

Item	Location	Number defective	Defect Detail	Remarks/Repairable/Unserviceable
Broken Taps	Ward	12	Leaking	Repairable
Dry Taps	-NA-	0	-NA-	

MISCELANEOUS REQUIREMENTS

Location	Repairing work detail	Remark
General Ward	Toilet Door Broken	Replacement
General Ward	Seepage	Seepage Treatment
General Ward	Bed Side Locker Rusted and some don't lock	Repairable
General Ward/Paying Ward	Water Closet Blocked	All Drainage Blocked
OT	Hydraulic OT Table Not Functioning	
OT	Foot Suction Machine Not Working	
OT	Electric Suction Non Functional	
LAB	Saline Stand Rusted	Repairable
Hospital Premises	Animal Intrusion	Boundary Wall Construction
Hospital Premises	Weeds and Garbage	Needs Cleaning
OPD	Water Cooler doesn't cool water	Needs Repair

X-Ray Department	No Lead Lining on doors and walls	Installation of Lead Lining
NEW REQUIREMENT		
Item	Requirement in Numbers	Location
Wash Basin	4	OPD, GW, PW
Dressing Trolley	0	
Patient Bed	6	IPD
Suction Machine	0	
Shadow less OT Light	0	

ANNEXURE II – SUREVY REPORT – CHC KURUD

Item	Department	Number	Defective Number	Defect Detail	Remark
Wheel Chair	IPD	0	0	-NA-	New Requirement
	OPD	0	0	-NA-	New Requirement
	OT	0	0	-NA-	New Requirement
	Stores	0	0	-NA-	New Requirement
Hand Stretcher	IPD	0	0	-NA-	
	OPD	0	0	-NA-	
	OT	0	0	-NA-	
	Stores	8	0	-NA-	
Stretcher Trolley	IPD	1	0	-NA-	
	OPD	1	0	-NA-	
	OT	0	0	-NA-	
	Stores	0	0	-NA-	
Dressing Trolley	OT	2	2	Defective Wheels	Replacement
	Minor OT	1	0	-NA-	
	Labor OT	1	0	-NA-	

Syringe and Needle Destroyers				
Department	Numbers Available	Defective Number	Defect Detail	Remarks
IPD	0	0		
Lab	1	1	Machine non-functional	Repairable
Blood Storage Unit	1	0		
Vaccination Room	1	0		
OT	1	0		
Labor OT	1	0		
Minor OT	1	0		
Injection Room	1	0		

Bedside Screens				
Department	Numbers Available	Defective Number	Defect Detail	Remarks
IPD	1	1	No Screen	Curtain Required
OPD Clinic	2	0		
Labor OT	1	0		

Electrical Fitments										
		GW1	GW 2	PW	LA B	O T	M.O T	L.O T	XRA Y	H S
Switch Board	Total Available	11	4	4	4	16	3	4	5	4
	Defective	0	0	0	0	0	1	0	0	0
	New Requirement		2		8				0	0
Tube Light	Total Available	8	3	1	2	12	3	2	2	3
	Defective	0	2	0	0	4	2	1	0	0
	New Requirement			1	1		2	2		
Fan	Total Available	7	1	2	1	5	1	1	2	3
	Defective	0	0	0	0	0	0	0	0	0
	New Requirement	5	1	0	0	2		2		0
A/C	Total Available	0	0	0	0	2		0	0	0
	Defective	0	0	0	0	0		0	0	0
	New Requirement	0	0		1	0		1	0	0
Room Cooler	Total Available	1	2	1	0	0	0	0	0	1
	Defective	0	0	0	0	0	0	0	0	0
	New	3	0	0	1	0	1	1	1	0

	Requirement									
Hanging Wire	Total Available	1	0	0	0	4	1	3	0	0
Open Electrical Panels/Wires	Total Available	2	0	0	0	0	0	0	0	0

Water Supply Fitments				
Item	Location	Number defective	Defect Detail	Remarks/Repairable/Unserviceable
Broken Taps	General Ward	0	-NA-	
Dry Taps	General Ward	2	-NA-	

Miscellaneous Requirements		
Location	Repairing work detail	Remark
General Ward	New Mattresses Reqd	Stitches Open
General Ward	Not sufficient No of Attendant Stools, and defective stools	New Requirement
General Ward	Bed side Locker Rusted and do not lock	Repairable
General Ward	Water Closet Blocked	All Drainage Blocked
General Ward	Uneven Beds	Repairable
Lab	Calorimeter (Shutter Light Fused) not Working	Repairable
Lab	2/4 Centrifuge machines defective	Repairable
New Requirement		
Item	Requirement in Numbers	Location
Wash Basin	4	OPD, IPD, Injection Room
Dressing Trolley	0	
Patient Bed	0	
Suction Machine	0	
Shadow less OT Light	1	Labor OT

ANNEXURE III – SURVEY REPORT – CIVIL HOSPITAL -KHAIRAGARH

Item	Department	Number	Defective Number	Defect Detail	Remark
Wheel Chair	IPD	1	0		
	OPD	1	0		
	OT	0	0		
	Stores	0	0		
Hand Stretcher	IPD	2	1	Torn and Rusted	Repairable
	OPD	0	0		
	OT	1	0		
	Stores	0	0		
Stretcher Trolley	IPD	0	0		
	OPD	0	0		
	OT	1	0		
	Stores	0	0		
Dressing Trolley	OT	1	0		
	Minor OT	1	0		
	Labor OT	1	0		

Syringe and Needle Destroyers				
Department	Numbers Available	Defective Number	Defect Detail	Remarks
IPD	1	1	Machine non-functional	Repairable
Lab	1	0	-NA-	
Vaccination Room	1	0	-NA-	
OT	1	0	-NA-	
Labor OT	1	1	Machine non-functional	Repairable
Minor OT	1	0	-NA-	
Injection Room	0	0	-NA-	

Bedside Screens				
Department	Numbers Available	Defective Number	Defect Detail	Remarks
IPD	3	0	-NA-	
OPD Clinic	2	0	-NA-	
Labor OT	0	0	-NA-	

Electrical Fitments											
		GW	PW	LAB	OT	M.OT	L.OT	XRAY	E.OT	USG	HS
Switch Board	Total Available	19	9	4	7	2	2	2	12	1	4
	Defective	1	0	1	0	0	0	0	0	0	0
	New Requirement	3	3	5	0	0	0	0	0	1	
Tube Light	Total Available	19	7	2	2	2	2	1	6	1	3
	Defective	2	2	1	0	0	0	0	2	0	0
	New Requirement	5	2	2	0	0	0	1	2	0	
Fan	Total Available	10	9	0	4	1	1	1	5	0	2
	Defective	2	0	0	0	1	0	0	0	0	0
	New Requirement	3	0	1	0	0	0	1	2	1	1
A/C	Total Available	0	0	0	1	0	0	0	2	0	0
	Defective	0	0	0	0	0	0	0	0	0	0
	New Requirement		0	1	1	0	1	0	0	1	
Room Cooler	Total Available	4	0	0	0	0	0	0	0	0	0
	Defective	2	0	0	0	0	0	0	0	0	0
	New	2	9	0	0	1	0	1	0	0	1

	Requirement										
Hanging Wire	Total Available	0	0	0	0	1	0	1	0	0	0
Open Electrical Panels/Wires	Total Available	0	0	0	0	0	0	0	0	0	0

Water Supply Fitments				
Item	Ward	Number defective	Defect Detail	Remarks/Repairable/Unserviceable
Broken Taps	IPD	2	Leaking	Replacement
Dry Taps	IPD, Minor OT, Labor OT, OT, Lab	ALL	No Water Supply	No Water Supply

Miscellaneous Requirements		
Location	Repairing work detail	Remark
GW	Un-covered Drainage	
GW	Un-covered Water Tank	
GW	Seepage	Needs Seepage Treatment
Isolation Ward	Declared Un-fit by PWD	Needs to be demolished
Staff Quarters (3)	Declared Un-fit by PWD	Needs to be demolished
Ramp	No Proper Cemented Ramp	Cemented Ramp Construction Needed
Hospital Premises	Animal Intrusion	Boundary Wall Construction
Hospital Premises	Weeds and Garbage	Needs Cleaning
X-Ray Department	No Lead Lining on doors and walls	Installation of Lead Lining
OT Complex	Uncovered waiting area	
Minor OT	Plaster is shedding off from	Repairing Needed

	the Ceiling	
New Requirement		
Item	Requirement in Numbers	Location
Wash Basin	6	Dressing Room, Injection Room, Vaccination Room, OPD Clinics
Dressing Trolley	0	
Patient Bed	4	IPD
Suction Machine	0	
Shadow less OT Light	5	OT, Labor OT, Minor OT, Eye OT

ANNEXURE IV – LIST OF EQUIPMENTS – CHC BILHA

Equipments compared against IPHS standards – 31-50 bedded hospital

I. Imaging Equipment			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	100 M.A. X-ray machine	1	2
2	Digital 300 M.A. X ray machine	1	1
3	Ultra Sonogram (Obs & Gyne. department should be having a separate ultra-sound machine of its own)	1 + 1	0

II. X RAY Room Accessories			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	X.ray developing tank	1	1
2	Safe light X.ray dark room	1	1
3	Cassettes X.ray	4	3
4	X.ray lobby single	2	0
5	Lead Apron	1	1
6	Intensifying screen X-ray	1	4 (3 damage)

III. Cardiac Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	ECG machine ordinary	1	0
2	Cardiac Monitor	2	1
3	Pulse Oximeter	2	1
4	Infusion pump	1	1
5	B.P.apparatus table model	6	11 (FRU)
6	B.P.apparatus stand model	4	0
7	Stethoscope	2	15 CMO-79 FRU

IV. Labour ward & Neo Natal Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Baby Incubators	1	-
2	Phototherapy Unit	1	1
3	Emergency Resuscitation Kit-Baby*	2	1
4	Radiant Warmer	1	2
5	Room Warmer	2	0
6	Foetal Doppler	1	1
7	CTG Machine	1	0
8	Delivery Kit	2	1
9	Episiotomy kit	1	1
10	Forceps Delivery Kit	1	0
12	Vacuum extractor metal	1	2 CMO 5 FRU
13	Silastic vacuum extractor	1	-
14	Pulse Oximeter baby & adult	1	-
15	Cardiac monitor baby	1	-
16	Nebulizer baby	1	10
17	Weighing machine adult	2	17 CMO-29 FRU
18	Weighing machine infant	2	9 CMO-26 FRU

V. Eye Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ophthalmoscope – Direct	1	2 FRU
2	Slit Lamp	1	
3	Retino scope		1
4	Perimeter	1	0
5	IOL Operation set	2	0

VI. Dental Equipments			
S.0	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Air Rotor	1	0
2	Dental Unit with motor for dental OP	1	0
3	Dental Chair	1	0
4	Dental Kit	1	0

VII .Operation Theatre Equipment			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Auto Clave HP Horizontal	0	1
2	Auto Clave HP Vertical (2 bin)	1	1 CMO 2 FRU
3	Operation Table Hydraulic Major	1	3 1 damage
4	Operation table Hydraulic Minor	1	0
5	Operating table non-hydraulic field type	1	3 CMO
6	Autoclave vertical single bin	1	4 CMO 2 FRU
7	Shadowless lamp ceiling type major*	1	0
8	Shadowless lamp ceiling type minor*	1	0
9	Shadowless Lamp stand model	1	3 CMO 3 FRU
10	Focus lamp Ordinary	1	0
11	Sterilizer big (Instrument)	1	7 FRU
12	Sterilizer Medium (Instrument)	2	12 FRU
13	Sterilizer Small (Instruments)	2	20 FRU
14	Bowl Sterilizer - big*	1	0
15	Bowl sterilizer - Medium*	1	0
16	Diathermy Machine (Electric Cautery)	1	1 FRU
17	Suction Apparatus - Electrical	2	2 CMO 1 FRU
18	Suction Apparatus - Foot operated	1	23 FRU
19	Ultra violet lamp Philips model 4 feet	2	0

* To be provided as per need.

VIII. Laboratory Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Binocular Microscope	2	1CMO2 FRU
2	Chemical Balances(Electrical Monopan)	1	0
3	Simple balance	1	0
4	Electric Colorimeter	1	1CMO 1FRU
5	Micro pipettes of different volume range [10-100ml],	4	1
6	Water bath	1	0
7	Hot Air oven*	1	0
8	Lab Incubator*	1	0
9	Distilled water plant	1	0
10	Electricentrifuge Table Top	1	5CMO 5FRU
11	Cell Counter Electronic*	1	2 CMO
12	Hot plates	2	0
13	Haemoglobinometer	0	60 FRU
14	TCDC count apparatus	0	1
15	ESR stand with tubes	0	1 CMO
16	Test tube stands *	0	4
17	Test tube rack *	3	9
18	Test tube holders*	3	11
19	Spirit lamp*	4	11
20	Timer stop watch	1	1
21	Alarm clock	1	0
22	Lab Autoclaves	2	0
23	Refrigerators	1	0
24	Tonometer for opthalmology	-	0

* To be provided as per need.

IX. Surgical Equipment Sets			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	P. S. Set	1	Made
2	MTP Set	1	5
3	Biopsy Cervical Set*	1	0
4	D & C Set	1	1 CMO
5	I.U.C.D. Kit	1	27 FRU
6	LSCS set	1	1
7	MVA Kit	1	0
8	Vaginal Hysterectomy	1	0
9	Proctoscopy Set*	1	0
10	P.V. Tray*	1	1
11	Abdominal Hysterectomy set	1	0
12	Laparotomy Set	1	0
13	Formaline dispenser	1	0
14	Kick Bucket	4	0
15	General Surgical Instrument Set Piles, Fistula, Fissure*	1	1
16	Knee hammer	1	0
17	Hernia, Hydrocele*	1	0
18	Vaginal Examination set*	2	2
19	Suturing Set*	2	2
20	MTP suction apparatus	1	0
21	Thomas Splint	3	0
22	Mini Surgery Set*	1	1
23	GI Operation Set*	1	0
24	Appendicectomy set *	1	0
25	L.P.Tray*	1	0
26	Urethral Dilator Set	1	0
27	Amputation set	1	0

28	Crammer wire splints	6	0

X. Physiotherapy Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Skeleton traction set	1	0
2	Short Wave Diathermy	1	0

XI. Endoscopy Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Laparoscope diagnostic and for sterilization *	1	0

XII. Anaesthesia Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Anaesthetic - laryngoscope magills with four blades	2	Single Blade
2	Endo tracheal tubes sets	1	0
3	Magills forceps (two sizes)	3	0
4	Connector set of six for E.T.T	3	0
5	Tubes connecting for ETT	4	0
6	Air way female*	4	4
7	Air way male*	8	Yes
8	Mouth prop*	6	0
9	Tongue depressors*	6	0
10	O2 cylyinder for Boyles	6	1
11	N2O Cylinder for Boyles	6	1
12	CO2 cylinder for laparoscope*	2	
13	Boyles Apparatus with Fluotec and circle absorber	1	0
14	Exchange Transfusion Sets*	0	0

XIII. Furniture & Hospital Accessories			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Doctor's chair for OP Ward, Blood Bank, Lab etc.	12	9
2	Doctor's Table	3	3
3	Duty Table for Nurses	4	1
4	Table for Sterilisation use (medium)	4	1
5	Long Benches(6 1/2' x 1 1/2')	10	2
6	Stool Wooden	8	8
7	Stools Revolving	6	16CMO25FRU
8	Steel Cup-board	8	0
9	Wooden Cup Board	4	0
10	Racks -Steel – Wooden	5	4-5
11	Patients Waiting Chairs (Moulded) *	10	0
12	Office Chairs	4	-
13	Office Table	3	5
14	Foot Stools *	8	-
15	Filing Cabinets (for records) *	6	0
16	M.R.D.Requirements (record room use) *	1	0
17	Paediatric cots with railings	3	0
18	Cradle*	2	7 CMO 6FRU
19	Fowler's cot	0	Yes
20	Ortho Facture Table*	0	0
21	Hospital Cots (ISI Model)	50	48
22	Hospital Cots Paediatric (ISI Model)	5	0
23	Wooden Blocks (Set)*	1	0
24	Back rest*	2	10 CMO
25	Dressing Trolley (SS)	2	10 FRU

26	Medicine Almairah	1	
27	Bin racks (wooden or steel)*	3	0
28	ICCU Cots	2	0
29	Bed Side Screen (SS-Godrej Model)	As per requirements	13CMO 13FRU
30	Medicine Trolley(SS)	2	7 CMO
31	Case Sheet Holders with clip(S.S.)*	40	64 plastic
32	Examination Couch (SS)	2	8 CMO 2 FRU
33	Instrument Trolley (SS)	4	2 CMO
34	Instrument Trolley Mayos (SS)	2	5 FRU
35	Surgical Bin Assorted	15	9
36	Wheel Chair (SS)	3	5 CMO
37	Stretcher / Patience Trolley (SS)	2 each	6/5
38	Instrument Tray (SS) Assorted	20	48 -10*12
39	Kidney Tray (SS) - Assorted	20	12’-210
40	Basin Assorted (SS)	20	
41	Basin Stand Assorted (SS)	20	
	(2 basin type)	3	
	(1 basin type)	5	2 CMO
42	Delivery Table (SS Full)	4	1 hydraulic
43	O2 Cylinder Trolley(SS)	6	3 CMO 32 FRU
44	Saline Stand (SS)	10	15 CMO 24 FRU
45	Waste Bucket (SS)*	20	
46	Dispensing Table Wooden	1	1
47	Bed Pan (SS)*	10	9 CMO
48	Urinal Male and Female	10	7 CMO
49	Name Board for cubicals*	1	
50	Waste Disposal - Bin / drums	8	
51	Waste Disposal - Trolley (SS)	1	0
52	Linen Almirah	2	0
53	Stores Almirah	2	

54	Arm Board Adult*	6	0
55	Arm Board Child*	6	0
56	SS Bucket with Lid	4	
57	Bucket Plastic*	6	18 CMO
58	Ambu bags	2	Adult2 Child 152
59	O2 Cylinder with spanner ward type	6	5 CMO 3 FRU
60	Diet trolley - stainless steel	1	0
61	Needle cutter and melter	10	26 CMO
62	Thermometer clinical *	10	781 FRU
	Thermometer Rectal*	3	
63	Torch light*	6	20 CMO
64	Cheatles forceps assortted*	5	
65	Stomach wash equipment*	2	
66	Infra Red lamp*	3	0
67	Wax bath*	1	0
68	Emergency Resuscitation Kit-Adult*	2	0
69	Enema Set*	2	42 FRU 14 CMO
70	Ceiling Fan$	As per requirement	Yes
	* - to be provided as per need		
	$ - One fan per four beds in the ward.		
	^ - At least one screen per five beds except female wards.		

XIV. PM equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Mortuary table (Stainless steel) *	2	2
2	P.M.equipments (list)	3	3
3	Weighing machines (Organs)	1	0
4	Measuring glasses(liquids)	2	0

5	Aprons*	10	0
6	PM gloves (Pairs)*	10	0
7	Rubber sheets*	4	Yes
8	Lens	1	
9	Spot lights	1	

* - to be provided as per need

XV. Linen			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Bed sheets	200	58
2	Bedspreads	300	
3	Blankets Red and blue	20	55
4	Patna towels	100	0
5	Table cloth	30	0
6	Draw sheet	30	
7	Doctor's overcoat	20	0
8	Hospital worker OT coat	25	0
9	Patients house coat (for female)	150	0
10	Patients Pyjama (for male) Shirt	100	12
11	Over shoes pairs	40	0
12	Pillows	60	17 CMO 83 FRU
13	Pillows covers	150	29
14	Mattress (foam) Adult	50	54
15	Paediatric Mattress	6	0
16	Abdominal sheets for OT	30	N0
17	Pereneal sheets for OT	30	0
18	Leggings	40	N0
19	Curtain cloth windows and doors	as per requirements	32 meters
20	Uniform / Apron	as per requirements	0

21	Mortuary sheet	10	0
22	Mats (Nylon)	30	0
23	Mackin tosh sheet (in meters)	100	Yes
24	Apron for cook	as per requirements	0

XVI. Teaching Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Slide Projector	1	0
2	O.H.P	1	0
3	Screen	1	0
4	White / colour boards	1	2
5	Television colour	1	0
6	Tape Recorder* (2 in 1)	1	0
7	VCD Player	1	0
8	Radio	1	0

* to be provided as per need

XVII. Administration			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Computer with Modem with UPS, Printer with Internet Connection	2	2 Net c. 1
2	Xerox Machine	1	0
3	Intercom (15 lines)*	1	0
4	Fax Machine	1	0
5	Telephone	1	1
6	Public Address System*	1	0

* - to be provided as per need

XVIII. Refrigeration & AC			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Refrigerator 165 litres	2	3
2	Blood Bank Refrigerato	1	1
3	ILR	1	3
4	Deep Freezer	1	3
5	Coolers	As per requirement	Yes
6	Air conditioners	3	Yes

XIX. Hospital Plants			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Generator 40 / 50 KV	1	0
2	Portable 2.5 KV	1	0

XX. Hospital Fittings & Necessities			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ceiling Fans*	20	21
2	Exhaust Fan*	6	2
3	Pedestal Fan*	1	2
4	Wall Fan*	1	2
5	Hotwater geiser*	1	0
6	Fire extinguishers*	1	0
7	Sewing Machine*	1	0
8	Lawn Mover*	1	0
9	Aqua guard*	4	0
10	Water dispenser / Water cooler*		2
11	Emergency trauma set*	1	0
12	Tube lights*	30	30
13	Drinking Water Fountain*	1	1

*to be provided as per need

XXI. Transport			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ambulance	1	1
2	Van (Family Welfare)	0	0
3	Pickup vehicles Maruti (Omni)	1	0
4	Motorcycle	0	0

ANNEXURE V – LIST OF EUIPMENTS – CHC KURUD

Equipments compared against IPHS standards – 31-50 bedded hospital

I. Imaging Equipment			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	100 M.A. X-ray machine	1	1[300MA]
2	Dental X ray machine	1	-
3	Ultra Sonogram (Obs. & Gyn. department should be having a separate ultra-sound machine of its own)	1 + 1	0

II. X RAY Room Accessories			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	X.ray developing tank	1	1
2	Safe light X.ray dark room	1	1
3	Cassettes X.ray	4	4
4	X.ray lobby single	2	0
5	Lead Apron	1	1
6	Intensifying screen X-ray	1	0

III. Cardiac Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	ECG machine ordinary	1	1
2	Cardiac Monitor	2	1
3	Pulse Oximeter	2	1
4	Infusion pump	1	0
5	B.P.apparatus table model	6	4
6	B.P.apparatus stand model	4	2

7	Stethoscope	2	10

IV. Labour ward & Neo Natal Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Baby Incubators	1	0
2	Phototherapy Unit	1	2
3	Emergency Resuscitation Kit-Baby*	2	1
4	Radiant Warmer	1	1
5	Room Warmer	2	0
6	Foetal Doppler	1	0
7	CTG Machine	1	0
8	Delivery Kit	2	20
9	Episiotomy kit	1	0
10	Forceps Delivery Kit	1	0
12	Vacuum extractor metal	1	0
13	Silastic vacuum extractor	1	0
14	Pulse Oximeter baby & adult	1	1
15	Cardiac monitor baby	1	1
16	Nebulizer baby	1	0
17	Weighing machine adult	2	1
18	Weighing machine infant	2	5
19	Examination Gynae. Table		

V. Eye Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ophthalmoscope – Direct	1	1
2	Slit Lamp	1	0
3	Retinoscope		0
4	Perimeter	1	0

5	IOL Operation set	2	0

VI. Dental Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Air Rotor	1	0
2	Dental Unit with motor for dental OP	1	0
3	Dental Chair	1	0
4	Dental Kit	1	0

VII .Operation Theatre Equipment			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Auto Clave HP Horizontal	0	2
2	Auto Clave HP Vertical (2 bin)	1	0
3	Operation Table Hydraulic Major	1	2
4	Operation table Hydraulic Minor	1	0
5	Operating table non-hydraulic field type	1	1
6	Autoclave vertical single bin	1	0
7	Shadow less lamp ceiling type major*	1	0
8	Shadow less lamp ceiling type minor*	1	1
9	Shadow less Lamp stand model	1	0
10	Focus lamp Ordinary	1	2
11	Sterilizer big (Instrument)	1	2
12	Sterilizer Medium (Instrument)	2	5
13	Steriliser Small (Instruments)	2	10
14	Bowl Steriliser - big*	1	0
15	Bowl steriliser - Medium*	1	0
16	Diathermy Machine (Electric Cautery)	1	1
17	Suction Apparatus – Electrical	2	2
18	Suction Apparatus - Foot operated	1	0

19	Ultra violet lamp Philips model 4 feet	2	3
20	Power drills	-	2
21	Pulse apparatus	-	2
22	Oxygen flow metre	-	3
23			

* To be provided as per need.

VIII. Laboratory Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Binocular Microscope	2	2
2	Chemical Balances(Electrical Monopan)	1	0
3	Simple balance	1	4
4	Electric Colorimeter	1	1
5	Micro pipettes of different volume range [10-100ml],	4	0
6	Water bath	1	1
7	Hot Air oven*	1	1
8	Lab Incubator*	1	1
9	Distilled water plant	1	0
10	Electricentrifuge Table Top	1	0
11	Cell Counter Electronic*	1	0
12	Hot plates	2	0
13	Haemoglobinometer	0	5
14	TCDC count apparatus	0	5
15	ESR stand with tubes	0	10
16	Test tube stands *	0	0
17	Test tube rack *	3	
18	Test tube holders*	3	3
19	Spirit lamp*	4	3
20	Timer stop watch	1	4

21	Alarm clock	1	0
22	Lab Autoclaves	2	0
23	Refrigerators	1	1
24	Tonometer for ophthalmology	1	0
25	Photoscope		0

* To be provided as per need.

IX. Surgical Equipment Sets			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	P. S. Set	1	2
2	MTP Set	1	1
3	Biopsy Cervical Set*	1	0
4	D & C Set	1	1
5	I.U.C.D. Kit	1	5
6	LSCS set	1	0
7	MVA Kit	1	0
8	Vaginal Hysterectomy	1	0
9	Proctoscopy Set*	1	0
10	P.V. Tray*	1	2
11	Abdominal Hysterectomy set	1	1
12	Laparotomy Set	1	1
13	Formaline dispenser	1	5
14	Kick Bucket	4	3
15	General Surgical Instrument Set Piles, Fistula, Fissure*	1	1
16	Knee hammer	1	5
17	Hernia, Hydrocele*	1	3
18	Vaginal Examination set*	2	4
19	Suturing Set*	2	20
20	MTP suction apparatus	1	1
21	Thomas Splint	3	4

22	Mini Surgery Set*	1	2
23	GI Operation Set*	1	1
24	Appendicectomy set *	1	0
25	L.P.Tray*	1	0
26	Uretheral Dilator Set	1	0
27	Amputation set	1	0
28	Crammer wire splints	6	0

X. Physiotherapy Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Skeleton traction set	1	0
2	Short Wave Diathermy	1	0

XI. Endoscopy Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Laparoscope diagnostic and for sterilisation *	1	0

XII. Anaesthesia Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Anaesthetic - laryngoscope magills with four blades	2	1
2	Endo tracheal tubes sets	1	1
3	Magills forceps (two sizes)	3	1
4	Connector set of six for E.T.T	3	0
5	Tubes connecting for ETT	4	0
6	Air way female*	4	1
7	Air way male*	8	0
8	Mouth prop*	6	5
9	Tongue depressors*	6	10
10	O2 cylinder for Boyles	6	5

11	N2O Cylinder for Boyles	6	2
12	CO2 cylinder for laparoscope*	2	0
13	Boyles Apparatus with Fluotec and circle absorber	1	0
14	Exchange Transfusion Sets*	0	0

XIII. Furniture & Hospital Accessories			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Doctor's chair for OP Ward, Blood Bank, Lab etc.	12	10
2	Doctor's Table	3	5
3	Duty Table for Nurses	4	2
4	Table for Sterilisation use (medium)	4	1
5	Long Benches(6 1/2' x 1 1/2')	10	10
6	Stool Wooden	8	0
7	Stools Revolving	6	10
8	Steel Cup-board	8	7
9	Wooden Cup Board	4	2
10	Racks -Steel – Wooden	5	0
11	Patients Waiting Chairs (Moulded) *	10	10
12	Office Chairs	4	10
13	Office Table	3	15
14	Foot Stools *	8	10
15	Filing Cabinets (for records) *	6	0
16	M.R.D Requirements (record room use) *	1	2
17	Paediatric cots with railings	3	0
18	Cradle*	2	0
19	Fowler's cot	0	0
20	Ortho Facture Table*	0	1
21	Hospital Cots (ISI Model)	50	0
22	Hospital Cots Paediatric (ISI Model)	5	0
23	Wooden Blocks (Set)*	1	0

24	Back rest*	2	0
25	Dressing Trolley (SS)	2	5
26	Medicine Almairah	1	2
27	Bin racks (wooden or steel)*	3	0
28	ICCU Cots	2	0
29	Bed Side Screen (SS-Godrej Model)	As per requirements	3
30	Medicine Trolley(SS)	2	5
31	Case Sheet Holders with clip(S.S.)*	40	0
32	Examination Couch (SS)	2	1
33	Instrument Trolley (SS)	4	2
34	Instrument Trolley Mayos (SS)	2	1
35	Surgical Bin Assorted	15	0
36	Wheel Chair (SS)	3	1
37	Stretcher / Patience Trolley (SS)	2 each	2
38	Instrument Tray (SS) Assorted	20	10
39	Kidney Tray (SS) – Assorted	20	10
40	Basin Assorted (SS)	20	5
41	Basin Stand Assorted (SS)	20	5
	(2 basin type)	3	2
	(1 basin type)	5	1
42	Delivery Table (SS Full)	4	1
43	O2 Cylinder Trolley(SS)	6	2
44	Saline Stand (SS)	10	10
45	Waste Bucket (SS)*	20	10
46	Dispensing Table Wooden	1	1
47	Bed Pan (SS)*	10	2
48	Urinal Male and Female	10	2
49	Name Board for cubicals*	1	1
50	Waste Disposal - Bin / drums	8	4
51	Waste Disposal - Trolley (SS)	1	0
52	Linen Almirah	2	1

53	Stores Almirah	2	2
54	Arm Board Adult*	6	2
55	Arm Board Child*	6	0
56	SS Bucket with Lid	4	0
57	Bucket Plastic*	6	4
58	Ambu bags	2	10
59	O2 Cylinder with spanner ward type	6	2
60	Diet trolley - stainless steel	1	0
61	Needle cutter and melter	10	5
62	Thermometer clinical *	10	1
	Thermometer Rectal*	3	0
63	Torch light*	6	2
64	Cheatles forceps assortted*	5	0
65	Stomach wash equipment*	2	2
66	Infra Red lamp*	3	0
67	Wax bath*	1	0
68	Emergency Resuscitation Kit-Adult*	2	1
69	Enema Set*	2	1
70	Ceiling Fan$	As per requirement	30
	* - to be provided as per need		
	$ - One fan per four beds in the ward.		
	^ - At least one screen per five beds except female wards.		

XIV. PM equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Mortuary table (Stainless steel) *	2	0
2	P.M.equipments (list)	3	0
3	Weighing machines (Organs)	1	0
4	Measuring glasses(liquids)	2	0

5	Aprons*	10	0
6	PM gloves (Pairs)*	10	0
7	Rubber sheets*	4	0
8	Lens	1	0
9	Spot lights	1	0

* - to be provided as per need

XV. Linen			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Bed sheets	200	50
2	Bedspreads	300	0
3	Blankets Red and blue	20	10
4	Patna towels	100	25
5	Table cloth	30	10
6	Draw sheet	30	0
7	Doctor's overcoat	20	0
8	Hospital worker OT coat	25	0
9	Patients house coat (for female)	150	0
10	Patients Pyjama (for male) Shirt	100	4
11	Over shoes pairs	40	0
12	Pillows	60	20
13	Pillows covers	150	20
14	Mattress (foam) Adult	50	10
15	Paediatric Mattress	6	2
16	Abdominal sheets for OT	30	10
17	Pereneal sheets for OT	30	10
18	Leggings	40	10
19	Curtain cloth windows and doors	as per requirements	30
20	Uniform / Apron	as per requirements	30

21	Mortuary sheet	10	0
22	Mats (Nylon)	30	0
23	Mackintosh sheet (in meters)	100	50
24	Apron for cook	as per requirements	0

XVI. Teaching Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Slide Projector	1	0
2	O.H.P	1	0
3	Screen	1	0
4	White/colour boards	1	1
5	Television colour	1	0
6	Tape Recorder* (2 in 1)	1	0
7	VCD Player	1	0
8	Radio	1	0

* to be provided as per need

XVII. Administration			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Computer with Modem with UPS, Printer with Internet Connection	2	2
2	Xerox Machine	1	1
3	Intercom (15 lines)*	1	1
4	Fax Machine	1	1
5	Telephone	1	1
6	Public Address System*	1	1

* - to be provided as per need

XVIII. Refrigeration & AC			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Refrigerator 165 liters	2	4
2	Blood Bank Refrigerator	1	1
3	ILR	1	2
4	Deep Freezer	1	3
5	Coolers	As per requirement	8
6	Air conditioners	3	4

XIX. Hospital Plants			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Generator 40 / 50 KV	1	1
2	Portable 2.5 KV	1	0

XX. Hospital Fittings & Necessities			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ceiling Fans*	20	30
2	Exhaust Fan*	6	4
3	Pedestal Fan*	1	0
4	Wall Fan*	1	0
5	Hot water geyser*	1	0
6	Fire extinguishers*	1	0
7	Sewing Machine*	1	0
8	Lawn Mover*	1	0
9	Aqua guard*	4	1
10	Water dispenser / Water cooler*		1

11	Emergency trauma set*	1	0
12	Tube lights*	30	50
13	Drinking Water Fountain*	1	2

*to be provided as per need

XXI. Transport			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Ambulance	1	2
2	Van (Family Welfare)	0	0
3	Pickup vehicles Maruti (Omni)	1	0
4	Motorcycle	0	0

ANNEXURE VI – LIST OF EQUIPMENTS – CIVIL HOSPITAL KHAIRAGARH

Equipments compared against IPHS standards – 31-50 bedded hospital

I. Imaging Equipment			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	100 M.A. X-ray machine	1	0
2	Dental X ray machine	1	0
3	Ultra Sonogram (Obs & Gyne. department should be having a separate ultra-sound machine of its own)	1 + 1	1

II. X RAY Room Accessories			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	X.ray developing tank	1	8
2	Safe light X.ray dark room	1	5
3	Cassettes X.ray	4	15
4	X.ray lobby single	2	0
5	Lead Apron	1	3
6	Intensifying screen X-ray	1	4

III. Cardiac Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	ECG machine ordinary	1	0
2	Cardiac Monitor	2	1
3	Pulse Oximeter	2	1
4	Infusion pump	1	1
5	B.P.apparatus table model	6	3
6	B.P.apparatus stand model	4	3
7	Stethoscope	2	2

IV. Labour ward & Neo Natal Equipments			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**

1	Baby Incubators	1	0
2	Phototherapy Unit	1	0
3	Emergency Resuscitation Kit-Baby*	2	1
4	Radiant Warmer	1	1
5	Room Warmer	2	1
6	Foetal Doppler	1	1
7	CTG Machine	1	0
8	Delivery Kit	2	1
9	Episiotomy kit	1	1
10	Forceps Delivery Kit	1	0
12	Vacuum extractor metal	1	0
13	Silastic vacuum extractor	1	0
14	Pulse Oximeter baby & adult	1	0
15	Cardiac monitor baby	1	0
16	Nebulizer baby	1	0
17	Weighing machine adult	2	0
18	Weighing machine infant	2	1

V. Eye Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Opthalmoscope – Direct	1	1
2	Slit Lamp	1	2
3	Retino scope		1
4	Perimeter	1	0
5	IOL Operation set	2	0

VI. Dental Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Air Rotor	1	0

2	Dental Unit with motor for dental OP	1	0
3	Dental Chair	1	0
4	Dental Kit	1	0

VII .Operation Theatre Equipment

S.No	Name of the Equipment	IPHS Norm	Available
1	Auto Clave HP Horizontal	0	0
2	Auto Clave HP Vertical (2 bin)	1	2
3	Operation Table Hydraulic Major	1	0
4	Operation table Hydraulic Minor	1	0
5	Operating table non-hydraulic field type	1	1
6	Autoclave vertical single bin	1	1
7	Shadowless lamp ceiling type major*	1	0
8	Shadowless lamp ceiling type minor*	1	0
9	Shadowless Lamp stand model	1	1
10	Focus lamp Ordinary	1	0
11	Sterilizer big (Instrument)	1	0
12	Sterilizer Medium (Instrument)	2	1
13	Steriliser Small (Instruments)	2	1
14	Bowl Steriliser - big*	1	0
15	Bowl steriliser - Medium*	1	0
16	Diathermy Machine (Electric Cautery)	1	1
17	Suction Apparatus - Electrical	2	1
18	Suction Apparatus - Foot operated	1	1
19	Ultra violet lamp philips model 4 feet	2	0

* To be provided as per need.

VIII. Laboratory Equipments

S.No	Name of the Equipment	IPHS Norm	Available

1	Binocular Microscope	2	1
2	Chemical Balances(Electrical Monopan)	1	1
3	Simple balance	1	1
4	Electric Colorimeter	1	0
5	Micro pipettes of different volume range [10-100ml],	4	1
6	Water bath	1	0
7	Hot Air oven*	1	0
8	Lab Incubator*	1	0
9	Distilled water plant	1	0
10	Electricentrifuge Table Top	1	1
11	Cell Counter Electronic*	1	0
12	Hot plates	2	0
13	Haemoglobinometer	0	2
14	TCDC count apparatus	0	1
15	ESR stand with tubes	0	3
16	Test tube stands *	0	2
17	Test tube rack *	3	2
18	Test tube holders*	3	2
19	Spirit lamp*	4	2
20	Timer stop watch	1	0
21	Alarm clock	1	0
22	Lab Autoclaves	2	0
23	Refrigerators	1	0
24	Tonometer for opthalmology		1

* To be provided as per need.

IX. Surgical Equipment Sets			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**

1	P. S. Set	1	0
2	MTP Set	1	0
3	Biopsy Cervical Set*	1	0
4	D & C Set	1	1
5	I.U.C.D. Kit	1	1
6	LSCS set	1	0
7	MVA Kit	1	0
8	Vaginal Hysterectomy	1	0
9	Proctoscopy Set*	1	0
10	P.V. Tray*	1	1
11	Abdominal Hysterectomy set	1	0
12	Laparotomy Set	1	0
13	Formaline dispenser	1	0
14	Kick Bucket	4	2
15	General Surgical Instrument Set Piles, Fistula, Fissure*	1	0
16	Knee hammer	1	1
17	Hernia, Hydrocele*	1	0
18	Vaginal Examination set*	2	1
19	Suturing Set*	2	1
20	MTP suction apparatus	1	0
21	Thomas Splint	3	0
22	Mini Surgery Set*	1	1
23	GI Operation Set*	1	0
24	Appendicectomy set *	1	0
25	L.P.Tray*	1	0
26	Uretheral Dilator Set	1	0
27	Amputation set	1	0

28	Crammer wire splints	6	0

X. Physiotherapy Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Skeleton traction set	1	0
2	Short Wave Diathermy	1	0

XI. Endoscopy Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Laparoscope diagnostic and for sterilisation *	1	0

XII. Anaesthesia Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Anaesthetic - laryngoscope magills with four blades	2	0
2	Endo tracheal tubes sets	1	1
3	Magills forceps (two sizes)	3	0
4	Connector set of six for E.T.T	3	0
5	Tubes connecting for ETT	4	0
6	Air way female*	4	0
7	Air way male*	8	0
8	Mouth prop*	6	0
9	Tongue depressors*	6	1
10	O2 cylyinder for Boyles	6	1
11	N2O Cylinder for Boyles	6	1
12	CO2 cylinder for laparoscope*	2	0
13	Boyles Apparatus with Fluotec and circle absorber	1	0
14	Exchange Transfusion Sets*	0	0

XIII. Furniture & Hospital Accessories

S.No	Name of the Equipment	IPHS Norm	Available
1	Doctor's chair for OP Ward, Blood Bank, Lab etc.	12	6

2	Doctor's Table	3	3
3	Duty Table for Nurses	4	1
4	Table for Sterilisation use (medium)	4	1
5	Long Benches(6 1/2' x 1 1/2')	10	2
6	Stool Wooden	8	4
7	Stools Revolving	6	4
8	Steel Cup-board	8	2
9	Wooden Cup Board	4	1
10	Racks -Steel – Wooden	5	2
11	Patients Waiting Chairs (Moulded) *	10	4
12	Office Chairs	4	3
13	Office Table	3	3
14	Foot Stools *	8	6
15	Filing Cabinets (for records) *	6	2
16	M.R.D.Requirements (record room use) *	1	0
17	Paediatric cots with railings	3	0
18	Cradle*	2	2
19	Fowler's cot	0	2
20	Ortho Facture Table*	0	0
21	Hospital Cots (ISI Model)	50	10
22	Hospital Cots Paediatric (ISI Model)	5	0
23	Wooden Blocks (Set)*	1	0
24	Back rest*	2	0
25	Dressing Trolley (SS)	2	1
26	Medicine Almairah	1	1
27	Bin racks (wooden or steel)*	3	3
28	ICCU Cots	2	0

29	Bed Side Screen (SS-Godrej Model)	As per requirements	0
30	Medicine Trolley(SS)	2	0
31	Case Sheet Holders with clip(S.S.)*	40	0
32	Examination Couch (SS)	2	1
33	Instrument Trolley (SS)	4	2
34	Instrument Trolley Mayos (SS)	2	0
35	Surgical Bin Assorted	15	0
36	Wheel Chair (SS)	3	2
37	Stretcher / Patience Trolley (SS)	2 each	2
38	Instrument Tray (SS) Assorted	20	5
39	Kidney Tray (SS) - Assorted	20	5
40	Basin Assorted (SS)	20	6
41	Basin Stand Assorted (SS)	20	4
	(2 basin type)	3	1
	(1 basin type)	5	2
42	Delivery Table (SS Full)	4	1
43	O2 Cylinder Trolley(SS)	6	4
44	Saline Stand (SS)	10	10
45	Waste Bucket (SS)*	20	0
46	Dispensing Table Wooden	1	0
47	Bed Pan (SS)*	10	5
48	Urinal Male and Female	10	5
49	Name Board for cubicals*	1	0
50	Waste Disposal - Bin / drums	8	2
51	Waste Disposal - Trolley (SS)	1	0
52	Linen Almirah	2	1
53	Stores Almirah	2	1

54	Arm Board Adult*	6	0
55	Arm Board Child*	6	0
56	SS Bucket with Lid	4	0
57	Bucket Plastic*	6	6
58	Ambu bags	2	1
59	O2 Cylinder with spanner ward type	6	3
60	Diet trolley - stainless steel	1	0
61	Needle cutter and melter	10	10
62	Thermometer clinical *	10	10
	Thermometer Rectal*	3	0
63	Torch light*	6	3
64	Cheatles forceps assortted*	5	5
65	Stomach wash equipment*	2	2
66	Infra Red lamp*	3	0
67	Wax bath*	1	0
68	Emergency Resuscitation Kit-Adult*	2	1
69	Enema Set*	2	2
70	Ceiling Fan$	As per requirement	
	* - to be provided as per need		
	$ - One fan per four beds in the ward.		10
	^ - At least one screen per five beds except female wards.		5

XIV. PM equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Mortuary table (Stainless steel) *	2	0
2	P.M.equipments (list)	3	1
3	Weighing machines (Organs)	1	0
4	Measuring glasses(liquids)	2	2

5	Aprons*	10	0
6	PM gloves (Pairs)*	10	0
7	Rubber sheets*	4	2
8	Lens	1	0
9	Spot lights	1	0

* - to be provided as per need

XV. Linen			
S.No	**Name of the Equipment**	**IPHS Norm**	**Available**
1	Bed sheets	200	100
2	Bedspreads	300	5
3	Blankets Red and blue	20	10
4	Patna towels	100	0
5	Table cloth	30	5
6	Draw sheet	30	10
7	Doctor's overcoat	20	0
8	Hospital worker OT coat	25	10
9	Patients house coat (for female)	150	0
10	Patients Pyjama (for male) Shirt	100	0
11	Over shoes pairs	40	0
12	Pillows	60	30
13	Pillows covers	150	30
14	Mattress (foam) Adult	50	40
15	Paediatric Mattress	6	0
16	Abdominal sheets for OT	30	0
17	Pereneal sheets for OT	30	0
18	Leggings	40	0
19	Curtain cloth windows and doors	as per requirements	

20	Uniform / Apron	as per requirements	
21	Mortuary sheet	10	0
22	Mats (Nylon)	30	0
23	Mackin tosh sheet (in meters)	100	20
24	Apron for cook	as per requirements	0

XVI. Teaching Equipments

S.No	Name of the Equipment	IPHS Norm	Available
1	Slide Projector	1	0
2	O.H.P	1	0
3	Screen	1	0
4	White / colour boards	1	0
5	Television colour	1	0
6	Tape Recorder* (2 in 1)	1	0
7	VCD Player	1	0
8	Radio	1	0
	* to be provided as per need		

XVII. Administration

S.No	Name of the Equipment	IPHS Norm	Available
1	Computer with Modem with UPS, Printer with Internet Connection	2	2
2	Xerox Machine	1	0
3	Intercom (15 lines)*	1	0
4	Fax Machine	1	1
5	Telephone	1	1
6	Public Address System*	1	0
	* - to be provided as per need		

XVIII. Refrigeration & AC

S.No	Name of the Equipment	IPHS Norm	Available

1	Refrigerator 165 litres	2	1
2	Blood Bank Refrigerator	1	0
3	ILR	1	2
4	Deep Freezer	1	2
5	Coolers	As per requirement	10
6	Air conditioners	3	2

XIX. Hospital Plants

S.No	Name of the Equipment	IPHS Norm	Available
1	Generator 40 / 50 KV	1	0
2	Portable 2.5 KV	1	0

XX. Hospital Fittings & Necessities

S.No	Name of the Equipment	IPHS Norm	Available
1	Ceiling Fans*	20	10
2	Exhaust Fan*	6	3
3	Pedestal Fan*	1	0
4	Wall Fan*	1	0
5	Hotwater geiser*	1	0
6	Fire extinguishers*	1	0
7	Sewing Machine*	1	0
8	Lawn Mover*	1	0
9	Aqua guard*	4	0
10	Water dispenser / Water cooler*		0
11	Emergency trauma set*	1	0
12	Tube lights*	30	30
13	Drinking Water Fountain*	1	0

*to be provided as per need

XXI. Transport

S.No	Name of the Equipment	IPHS Norm	Available
1	Ambulance	1	2
2	Van (Family Welfare)	0	0
3	Pickup vehicles Maruti (Omni)	1	0
4	Motorcycle	0	0

ANNEXURE VII – HUMANRESOURCE – BILHA

No.	Name of post	Current availability at CHC
A.	**Clinical manpower**	
1	General surgeon	1
2	Physician	0
3	Obstetrician / gynecologist	1
4	Pediatrics	1
5	Anesthetist	1
6	Public health programme officer	1
7	Eye surgeon	0
8	Other specialist if any-	0
9	General duty officer[medical officer]	2
10	RMA	0
B.	**Support manpower**	
11	Nursing staff	0
a.	Public health nurse	0
b.	ANM	0
c.	Staff nurse	3
d.	Nurse / midwife	0
12	Dresser	1
13	Pharmacist / compounder	1
14	Lab. Technician	1
15	Radiographer	0
16	Ophthalmic assistant	1
17	Ward boys/ nursing orderlies	1
18	Sweepers	3
19	Chowkidaar	0
20	Statistical assistant / data entry operator	1[NRHM]
21	OPD attendant	0
22	Registration clerk	0
23	OT attendant	0
24	Other staff	3

ANNEXURE VIII– HUMAN RESOURCE – CHC KURUD

No.	Name of post	IPHS norm	Current availability at CHC	Vacant	Remarks
A.	**Clinical manpower**				
1.	General surgeon	1	0	1	
2.	Physician	1	0	1	
3.	Obstetrician / gynecologist	1	0	1	
4.	Pediatrics	1	0	1	
5.	Anesthetist	1	1	0	On contractual appointment or hiring of services from private sectors on case to case basis
6.	Public health programme officer	1	0	1	On contractual appointment
7.	Eye surgeon	1	0	1	For every 5 lakh population as per vision 2020 approved plan of action
8.	Other specialist if any-		0		
9.	General duty officer[medical officer]		4		
10.	RMA		1	0	
B.	**Support manpower**				
11.	Nursing staff	7+2	0	9	1ANM and 1 public health nurse for family welfare will be appointed under the ASHA Scheme
a.	Public health nurse	1	0	1	
b.	ANM	1	2		
c.	Staff nurse	7	2	5	
d.	Nurse / midwife				
12.	Dresser	1	2	0	
13.	Pharmacist / compounder	1	1	0	

14.	Lab. Technician	1	1	0	AID's project
15.	Radiographer	1	1	0	Temporary appointment through Jeewan Deep Samiti
16.	Ophthalmic assistant	1	1	0	OA may be placed wherever it does not exist through redeployment or contract
17.	Ward boys/ nursing orderlies	2	2	0	
18.	Sweepers	3	1	2	Temporary appointment through JDS
19.	Chowkidaar	1	1	0	Flexibility may rest with the state for recruitment of personnel as per the needs
20.	Statistical assistant / data entry operator	1	1[NRHM]	0	
21.	OPD attendant	1	Nil	1	
22.	Registration clerk	1	Nil	1	
23.	OT attendant	1	Nil	1	

ANNEXURE IX – HUMAN RESOURCE – CIVIL HOSPITAL KHAIRAGARH

No.	Name of post	IPHS norm	Current availability at CHC	Vacant	Remarks
A.	**Clinical manpower**				
1	General surgeon	1	0	1	
2	Physician	1	0	1	
3	Obstetrician / gynecologist	1	0	1	
4	Pediatrics	1	0	1	
5	Anesthetist	1	1	0	On contractual appointment or hiring of services from private sectors on case to case basis
6	Public health programme officer	1	0	1	On contractual appointment
7	Eye surgeon	1	0	1	For every 5 lakh population as per vision 2020 approved plan of action
8	Other specialist if any-	-	-	-	
9	General duty officer[medical officer]	-	4	-	
10	RMA	-	1	-	

B.	**Support manpower**				
11	Nursing staff	7+2	0	-	1ANM and 1 public health nurse for family welfare will be appointed under the ASHA Scheme
a.	Public health nurse	1	0	0	
b.	ANM	1	1	0	
c.	Staff nurse	7	3	4	
d.	Nurse / midwife		0		
12	Dresser	1	2	0	
13	Pharmacist / compounder	1	1	0	
14	Lab. Technician	1	1	0	AID's project
15	Radiographer	1	1	1	Temporary appointment through JeewanDeepSamiti
16	Ophthalmic assistant	1	2	0	OA may be placed wherever it does not exist through redeployment or contract
17	Ward boys/ nursing orderlies	2	5	0	
18	Sweepers	3	2	1	Temporary appointment through J.D.S
19	Chowkidaar	1	1	0	Flexibility may rest with

20	Statistical assistant / data entry operator	1	1[NRHM]	0	the state for recruitment of personnel as per the needs
21	OPD attendant	1	Nill	1	
22	Registration clerk*	1	1	0	
23	OT attendant	1	1	0	