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DIYA SOCIAL FOUNDATION ESTD-2017 WEST BENGAL

FOR, DIYA SOCIAL FOUNDATION
Prasenjit Chakraborty
CHAIRMAN

Prasenjit Chakraborty
Chairman
DIYA SOCIAL FOUNDATION

About DIYA SOCIAL FOUNDATION:

Basic Information –

DIYA SOCIAL FOUNDATION is located in Uttar Dinajpur district in West Bengal state. DIYA SOCIAL FOUNDATION is registered as a Public Charitable Trust with NGO Unique ID – 'WB/2017/0159359'.

Registration done with registration number: IV – 190303374/2017 on the date of 28th June 2017.

The Chairman of DIYA SOCIAL FOUNDATION is Prasenjit Chakraborty and Secretary is Suddhadeb Mohanta and Treasurer Bipul Kumar Shaw.

About Us

The DIYA SOCIAL FOUNDATION, assembled under the leadership of the present chairman had decided to establish DIYA SOCIAL FOUNDATION, Uttar Dinajpur in the year 2017-2018. The Trust has been registered, under the Trust Act 1962 of West Bengal, Reg.No – IV – 190303374/2017.

The DIYA SOCIAL FOUNDATION could not receive any type of fund from govt. of West Bengal, govt. of India & other private trust. Till running the organization to collect donation from public and member. Now the 50, a group of energetic youth & local people to help for social welfare activities. Our project area has no modern (latest) Health Institute. But our area covered many type of 'JANAJATI' like – Santhal, Mech, Rava, Munda, Dukpa, Nepali, Gorkha, Lepcha, Mog & one types of named 'TOTO jati'. The area of our projects covered by the forest, Agriculture land & River areas. Many type of undeveloped person resides here & they could not achieve Modern Health Facility, Education & Drinking Water. Our goal tries to our level based for the "Promotion of sustainable development of the people in need".

NGO Name

DIYA SOCIAL FOUNDATION

Niti Aayog Unique Id fo NGO

WB/2017/0159359

Chairman

PRASENJIT CHAKRABORTY

Secretary

SUDDHADEB MOHANTA

Treasurer

BIPUL KUMAR SHAW

FOR, DIYA SOCIAL FOUNDATION
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CHAIRMAN

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DIYA SOCIAL FOUNDATION Major Activities and Achievements

We serve our main activities in the rural area as like – Health, Education, Environment, Drinking Water, Disaster, Awareness Program, Child Labour Welfare, Mother & Child Nutrition, Women & Children Trafficking, Assisting Physically Handicapped person and other Social Welfare Activities continue of our district level etc. In the previous years we serve as Free Medical Camp at Kaliyaganj, Raiganj, Itahar, Hemtabad, Goalpokhar-I, Islampur, Goalpokhar-II, Karandighi, Chopra etc. with our Awareness Camp in various block in Uttar Dinajpur district.

How do we achieve this?

To achieve the mission the organization adopts the strategy of institutionalization of the target group, capacity building, community participation, developing network linkages and convergence.

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Brief Introduction to Healthcare scope:

India is an agro based country with its 70% of population residing in rural areas. After independence in 1947 all the governments focused to develop the villages on priority. As on today the investments were made in Health, Irrigation, Communication, and Education in our Five year plans, and measurable growths are seen in all these sectors. Realizing the dreams of Mahatma Gandhi's *Rural India* an era of Watershed management also emerged as a new entity in rural development, and accordingly there are success stories in our country. To further boost the community development as stated in the vision of our beloved Ex. President of India Dr. A P J Abdul Kalam, there are three forms of communication namely **Roads, Railways** and **Telecommunication** for a village to be a developed village.

Rural development has always been an important issue in all discussions pertaining to economic development, especially of developing countries, throughout the world. In the developing countries and some formerly communist societies, rural mass comprise a substantial majority of the population. Over **3.5 billion** people live in the Asia and Pacific region and some **63%** of them in rural areas.

The hospital services market represents one of the most lucrative segments of the Indian healthcare industry. Various factors, such as increasing prevalence of diseases, improving affordability and raising penetration of health insurance are fuelling the growth in the Indian Hospital industry. Several private players are also entering the sector with new plans of establishing hospitals and health centers around the country.

Healthcare has become one of India's largest sectors - both in terms of revenue and employment. Healthcare comprises hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance and medical equipment. The Indian healthcare sector is growing at a brisk pace due to its strengthening coverage, services and increasing expenditure by public as well as private players.

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Healthcare scenario is fast changing all over the world. Today Indian healthcare industry is business driven and one can see entry of all sorts of service providers to be part of this massive multi core business, growing at the rate of 13% annually.

Globalization and privatization have also changed the functioning of the healthcare system. The private health network is spreading fast throughout the country. Economic, political, social, environmental and cultural factors are influencing the healthcare and the delivery of the healthcare services.

The Indian healthcare market, which is worth around **USD 100 billion**, will likely grow at a **CAGR of 23% to USD 280 billion by 2020**. The healthcare market can increase three fold **USD 372 billion by 2022**.

There is a significant scope for enhancing healthcare services considering that healthcare spending as a percentage of **Gross Domestic Product (GDP)** is rising. Rural India, which accounts for over **70%** of the population, is set to emerge as a potential demand source.

The factors supportive of growth are growing incidence of lifestyle diseases, more medical awareness, technological advancements and increasing investments by public and private sector.

The healthcare industry is witnessing healthy growth thanks to increased disposable incomes, insurance coverage, and health awareness among the population. The healthcare sector in India remains one of the largest sectors in terms of both employment and revenue generation. This significant growth within the healthcare industry has been facilitated by a rapid privatization of healthcare particularly in secondary and tertiary healthcare services

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Key drivers for growth of Hospital Business in India

- **500 million** Additional middle class by **2025**
- Less than **25%** of population is currently covered by insurance. At the current rate of growth of insurance business the Insurance penetration is likely reach up to **45%** of population by **2020.**
- Growth in insurance business is most positive for private sectors hospitals. Health insurance provides affordability to high end medical treatment.

7 Major Problems of Healthcare Services in India

1. Neglect of Rural Population:

A serious drawback of India's health service is the neglect of rural masses. It is largely a service based on urban hospitals. Although, there are large no. of PHC's and rural hospitals yet the urban bias is visible. According to health information *31.5% of hospitals and 16% hospital beds are situated in rural areas where 75% of total population resides.*

Moreover the doctors are unwilling to serve in rural areas. Instead of evolving a health system dependent on paramedical (like bare-footed doctors in China) to strengthen the periphery. India has evolved one dependent on doctors giving it a top-heavy character.

2. Emphasis on Culture Method:

The health system of India depends almost on imported western models. It has no roots in the culture and tradition of the people. It is mostly service based on urban hospitals. This has been at the cost of providing comprehensive primary health care to all. Otherwise speaking, it has completely neglected preventive, pro-motive, rehabilitative and public health measures.

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3. Inadequate Outlay for Health:

According to the National Health Policy 2002, the Govt. contribution to health sector constitutes only 0.9 percent of the GDP. This is quite insufficient. In India, public expenditure on health is 17.3% of the total health expenditure while in China, the same is 24.9% and in Sri Lanka and USA, the same is 45.4 and 44.1 respectively. This is the main cause of low health standards in the country.

4. Social Inequality:

The growth of health facilities has been highly imbalanced in India. Rural, hilly and remote areas of the country are under served while in urban areas and cities, health facility is well developed. The SC/ST and the poor people are far away from modern health service.

5. Shortage of Medical Personnel:

In India shortage of medical personnel like doctors, a nurse etc. is a basic problem in the health sector. In 1999-2000, while there were only 5.5 doctors per 10,000 population in India, the same is 25 in the USA and 20 in China. Similarly the number of hospitals and dispensaries is insufficient in comparison to our vast population.

6. Medical Research:

Medical research in the country needs to be focused on drugs and vaccines for tropical diseases which are normally neglected by international pharmaceutical companies on account of their limited profitability potential. The National Health Policy 2002 suggests allocating more funds to boost medical research in this direction.

7. Expensive Health Service:

In India, health services especially allopathic are quite expensive. It hits hard the common man. Prices of various essential drugs have gone up. Therefore more emphasis should be given to the alternative systems of medicine. Ayurveda, Unani and Homeopathy systems are less costly and will serve the common man in better way. Concluding the health system has many problems. These problems can be overcome by effective planning and allocating more funds.

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Factors in Hospital Planning:

- Community interest over individual interest.
- Preventive services over curative services.
- Services catering to the weaker sections of the community.
- Rural over Urban.
- Regionalized Planning.

Two Basic Fundamental needs for Hospital to meet:

- Must meet the needs of the patient it is going to serve adequately.
- It must be in a size and proportions which the owners or promoters will be able to build and operate.

Principles of Hospital Planning:

- **Protection** from unwanted and unnecessary disturbances in order to help speedy recovery
- **Separation** of dissimilar activities
- **Control** the nurses stations should be positioned strategically to enable proper monitoring of visitors entering and leaving the ward, infants and children should be protected from theft and infection etc.
- **Circulation** all the departments of a hospital must be properly integrated.

Basic Objective which are to be met by the Hospital:

- Sound Architectural plan
- Economic viability
- Effective community orientation
- Quality patient care

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To sum up, five short-term actions must be carried out. Build staff capacity through nurse mentoring. Ensure availability of critical basic equipment. Raise community demand to draw political will. Influence policy through media and influential. And improve effectiveness of grass-roots health workers.

DIYA SOCIAL FOUNDATION MULTI SUPER SPECIALTY HOSPITAL

Proposed Departments :

- A Burn Care Facility (Hospital)
- Plastic Surgery (Hospital)
- Cardiology (Hospital)
- Dental Set Up -Stand Alone/Hospital Set Up
- Dermatology (Hospital)
- Gastroenterology (Hospital)
- Gi Surgery (Hospital)
- General Surgery (Hospital)
- Medicine and Geriatric (Hospital)
- Endocrinology (Hospital)
- Neurology (Hospital)
- Neurosurgery (Hospital)
- Gynae and Obstetrics Indoor Services (Hospital)
- Orthopedic (Hospital)

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- Otorhinolaryngology (Hospital)
- Psychiatry services (hospital)
- De Addiction center
- Ophthalmology
- Optometrist services
- Urology
- Nephrology
- Dialysis Centre
- CTVS (Hospital)
- Radiotherapy
- Medical Diagnostic Laboratories
- Imaging Centers-X-Ray Clinic/Cath lab/DSA/OPG And Dental/DEXA Scan
- Imaging Centers- CT Scan Centre/PETCT Scan
- Imaging Centers -MRI
- Rheumatology
- Pulmonology
- Medical Oncology Clinical Hematology
- Gynecological Oncology
- Surgical Oncology
- Neonatology
- Pediatric Surgery
- Palliative Care

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Facilities

1. Operation Theatre
a. One OT for every 50 general in-patient beds
b. One OT for every 25 surgical beds.
2. ICU beds =5 to 10% of total beds
3. Floor space for each ICU bed = 25 to 30 sq m (this includes support services)
4. Floor space for Pediatric ICU beds = 10 to 12 sq m per bed
5. Floor space for High Dependency Unit (HDU) = 20 to 24 sq m per bed
6. Floor space Hospital beds (General) = 15 to 18 sq m per bed
7. Beds space = 7 sq m per bed
8. Minimum distance between centre of two beds = 2.5 m (minimum)
9. Clearance at foot end of each bed=1.2m(minimum)
10. Minimum area for apertures (windows/Ventilators opening in fresh air)
    a.= 20% of the floor area (if on same wall)
    b.= 15% of the floor area (if on opposite walls)

Factors to be considered in locating hospital

- The location may be near the residential area.
- Too old building may be demolished and new construction done in its place.
- It should be free from dangers of flooding; it must not, therefore, be sited at the lowest point of the district.
- It should be in an area free of pollution of any kind including air, noise, and water and land pollution.
- It must be serviced by public utilities: water, sewage and storm –water disposal, electricity and telephone. In areas where such utilities are not available substitutes must be found, such as a deep well for water, generators for electricity and radio communication for telephone.
- Necessary environmental clearance will be taken

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Appearance and upkeep

- The hospital should have a high boundary wall with at least two exit gates.
- Building shall be plastered and painted with uniform colour scheme.
- There shall be no unwanted/outdated posters pasted on the walls of building and boundary of the hospital.
- There shall be no outdated/unwanted hoardings in hospital premises.
- There shall be provision of adequate light in the night so hospital is visible from approach road.
- Proper land scoping and maintenance of trees, gardens etc .should been ensured.
- There shall be no encroachment in and around the hospital.
- Solar panel should be installed on the side ways of roads

Signage

- The building should have a prominent board displaying the name of the Centre in the local language at the gate and on the building. Signage indicating access to various facilities at strategic points in the Hospital for guidance of the public should be provided. For showing the directions, colour coding may be used.
- Citizen charter shall be displayed at OPD and Entrance in local language including patient rights and responsibilities.
- Hospital layout with location and name of the facility shall be displayed at the entrance.
- Directional signage's for Emergency, all the Departments and utilities shall be displayed appropriately, so that they can be accessed easily.
- Florescent Fire Exit plan shall be displayed at each floor.
- Safety, Hazard and caution signs displayed prominently at relevant places.
- Display of important contacts like higher medical centers, blood banks, fire department, police, and ambulance services available in nearby area.
- Display of mandatory information (under RTI Act, PNDT Act, MTP Act etc.).

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Condition of roads, pathways and drains

- Approach road to hospital emergency shall be all weather motor able road.
- Roads shall be illuminated in the night.
- There shall be dedicated parking space separately for ambulances, Hospital staff and visitors.
- There shall be no stagnation/over flow of drains.
- There shall be no water logging / marsh in or around the hospital premises.
- There shall be no open sewage/ditches in the hospital.

Environmental friendly features

- The Hospital should be, as far as possible, environment friendly and energy efficient. Rain- Water harvesting, solar energy use and use of energy-efficient bulbs/equipment should be encouraged. Provision should be made for horticulture services including herbal garden.
- A room to store garden implements, seeds etc .will be made available.

Barrier free access

For easy access to non-ambulant (wheel-chair, stretcher), semi-ambulant, visually disabled and elderly persons infrastructure as per "Guidelines and Space Standards for barrier-free built environment for Disabled and Elderly Persons" of Government of India, is to be provided .This will ensure safety and utilization of space by disabled and elderly people fully and their full integration into the society. Provisions as per 'Persons with Disability Act 'should be implemented.

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Circulation Areas

Circulation areas comprise corridors, lifts, ramps, staircase and other common spaces etc. The flooring should be anti-skid and non-slippery.

Corridors–Corridors shall be at least 3 Meter Wide to accommodate the daily traffic. Size of the corridors, ramps, and stairs shall be conducive for maneuverability of wheeled equipment .Corridors shall be wide enough to accommodate two passing trolley, one of which may have a drip attached to it. Ramps shall have a slope of 1:15to1:18. It must be checked for maneuverability of beds and trolleys at any turning point.

Roof Height-The roof height should not be less than approximately 3.6 m measured at any point from floor to roof.

Entrance Area

Barrier free access environment for easy access to non-ambulant (wheel-chair, stretcher), semi- ambulant, visually disabled and elderly persons as per "Guidelines and Space Standards for barrier- free built environment for Disabled and Elderly Persons"of CPWD / Min of Social Welfare, GOI.

Ramp as per specification, Hand-railing, proper lightning etc. must be provided in all health facilities and retrofitted in older one which lacks the same.

The various types of traffic shall be grouped for entry into the hospital premises according to their nature. An important consideration is that traffic moving at extremely different paces (e.g. a patient on foot and an ambulance) shall be separated .There can be four access points to the site, in order to segregate the traffic.

- **Emergency**: for patients in ambulances and other vehicles for emergency departments.
- **Service**: for delivering supplies and collecting waste.
- **Service**: removal of dead
- **Main**: for all others

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Residential Quarters

All the essential medical and Para-medical staff will be provided with residential accommodation .If the accommodation cannot be provided due to any reason, then the staff may be paid house rent allowance, but in that case they should be staying inner vicinity, so that essential staff is available 24 x 7.

Disaster Prevention Measures

Building structure and the internal structure of Hospital should be made disaster proof especially earthquake proof, flood proof and equipped with fire protection measures.

Earth quake proof measures

Structural and non –structural should be built in to with stand quake as per geographical/state Govt. guidelines. Non-structural features like fastening the shelves, almirahs, equipment etc. are even more essential than structural changes in the buildings. Since it is likely to increase the cost substantially, these measures may especially be taken on priority in known earthquake prone areas.

Fire fighting equipment

Fire extinguishers, sand buckets etc. should be available and maintained to be readily available when there is a problem

The hospital shall have a dedicated disaster management plan in line with state disaster management plan. Disaster plan clearly defines the authority and responsibility of all cadres of staff and mechanism of mobilization resources.

All health staff should be trained and well conversant with disaster prevention and management aspects.

Regular mock drill should be conducted. After each drill the efficacy of disaster plan, preparedness of hospital and competence of staff shall be evaluated followed by appropriate changes to make plan more robust. The mock drill should be conducted at least once in a month and there should be a grade point evaluation system where departments will be given points according to their response time.

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Hospital Communication

- 24x7 working telephone shall be available for hospital. Additional telephone lines with restricted access for priority messages should be installed especially with ISD facilities. All messages should be written down in the log book in details for follow up especially in case of disaster situations. Wireless Services with police assistance and hotline with the collector can be used in emergency. Fax should be used for communication of information like quantity of drugs, specification of equipment etc. so as to avoid errors.
- Internal communication system for connecting important areas of hospitals like Emergency, Wards, OT, Kitchen, Laundry, CSSD, administration etc. should be established.

- Central Information booth should be functional and competent person shall be available for answering the enquiries .The anxious excited friends and relatives want to know the welfare of

Their kith and kin and hospital authorities should calm them down, console them and provide them with detail information from time to time from information booth .List of patients may be displayed with their bed/ward location.

- Crowds should be controlled and only the authorized attendants / relatives with passes should be allowed entry

Departmental Layout Clinical Services

Outdoor Patient Department (OPD)

The facility shall be planned keeping in mind the maximum peak hour patient load and shall have the scope for future expansion. OPD shall have approach from main road with signage visible from a distance.

Reception and Enquiry

- Enquiry/Mail Help desk shall be available with competent staff affluent in local language.
- The service may be out sourced. Services available at the hospital displayed at the enquiry.
- Name and contacts of responsible persons like Medical superintendent, Hospital Manager, Causality Medical officer, Public Information Officer etc. shall be displayed.

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b. Waiting Spaces

Waiting area with adequate seating arrangement shall be provided. Main entrance, general waiting and subsidiary waiting spaces are required adjacent to each consultation and treatment room in all the clinics. Waiting area at the scale of 1 sq ft/per average daily patient with minimum 400 sq ft of area is to be provided.

c. **Layout of OPD** shall follow functional flow of the patients, e.g.:

Enquiry→ Registration→ Waiting→ Sub-waiting→ Clinic→ Dressing room/Injection Room→ Billing→ Diagnostics (lab/X-ray) → Pharmacy→ Exit

d. **Patient amenities** (norms given in following pages)

- Potable drinking water.
- Functional and clean toilets with running water and flush.
- Fans / Coolers / AC
- Seating arrangement as per load of patient.

e. Clinics

The clinics should include general, medical, surgical, ophthalmic, ENT, dental, obstetrics and gynecology, Post-Partum Unit, pediatrics, dermatology and virology, psychiatry, neonatology, orthopedic and social service department. Doctor chamber should have ample space to sit for 4-5 people. Chamber size of 12.0 sq meters is adequate. The clinics for infectious and communicable diseases should be located in isolation, preferably, in remote corner, provided with independent access. For National Health Program, adequate space should be made available. Immunization Clinic with waiting Room having an area of 3 m × 4 m in PP centre/Maternity centre/ Pediatric Clinic should be provided. 1 Room for HIV/STI counseling is to be provided. Pharmacy shall be in close proximity of OPD. All clinics shall be provided with examination table, X-ray-View box, Screens and hand wishing facility. Adequate number of wheel chairs and stretcher shall be provided.

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f. **Nursing Services**

Various clinics under Ambulatory Care Area require nursing facilities in common which include dressing room, side laboratory, injection room, social service and treatment rooms etc.

Nursing Station: Need based space required for Nursing Station in OPD for dispensing nursing services. (Based on OPD load of patient)

g. **Quality Assurances in Clinics**

- Work load at OPD shall be studied and measures shall be taken to reduce the Waiting Time for registration, consultation, Diagnostics and pharmacy.
- Punctuality of staff shall be ensured.
- Cleanliness of OPD area shall be monitored on regular basis.
- There shall be provision of complaints / suggestion box. There shall be a mechanism to redress the complaints.
- Hospital shall develop standard operating procedures for OPD management, train the staff and implement it accordingly.
- Assessment of each patient shall be done in standard format.
- To avoid overcrowding hospital shall have patient calling systems (manual/Digital).
-

h. **Desirable Services**

- Air-cooling
- Patient calling system with electronic display
- Specimen collection center
- Television in waiting area
- Computerized Registration
- Public Telephone booth
- Provision of OPD manager
- ATM Machine

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Imaging

The department shall be located at a place which is accessible to both OPD and wards and also to operation theatre department. The size of the room shall depend on the type and size of equipment installed. The room shall have a sub-waiting area with toilet facility and a change room facility. Film developing and processing (darkroom) shall be provided in the department for loading, unloading, developing and processing of X-ray films. Room shall be completely cut off from direct light. Exhaust fan, ventilators shall be provided. Room shall have a loading bench (with acid and alkali resistant top), processing tank, washing tank and a sink. Separate Reporting Room for doctors shall be there.

Ultrasound room shall contain a patient couch, a chair and adequate space for the equipment. The lighting must be dim for proper examination. Hand-washing facility and toilet shall be attached with ultra sound room.

Process requirement and Quality Assurance in Radiology

- Layout and construction of X-Ray shall follow the AERB guidelines.
- Lead Aprons and Thermo Luminescent Dosimeters (TLD) badges shall be available with all the staff working in X-Ray room. TLD badges should be sent to BARC on regular bases for assessment.
- Cycle Time for reporting shall not be more than 24 hours. Same day reporting would be more desirable.
- Hospital shall ensure availability of adequate number of X-Ray films at all the times.
- Fixer solutions used in film processing shall not be disposed in drains. It shall be auctioned.
- Mandatory information as per PNDT act shall be displayed at ultra sonography center. Records shall also be maintained as per PNDT Act.
- Service provided by the department with schedule of charges shall be displayed.
- Department shall develop standard operating procedures for safe transportation of the patient to the department, handling and safe disposal of radioactive material and efficient operation of the department.
- Department shall have a system of preventive maintenance, breakdown repairs and periodic calibration of equipment.

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Clinical Laboratory

The department shall be situated such that it has easy access to IPD as well as OPD patients. The Laboratory shall have adequate space from the point of view of work load as well as maintenance of high level of hygiene to prevent the infection. Storage space shall be adequate (10% of total floor space) with separates storage space for inflammable items. The lay out shall ensure logical flow of specimens from receipt to disposal. There shall be separate and demarcated areas for sample collection, sample processing, hematology, biochemistry, clinical pathology and reporting. The table top shall be acid and alkali proof.

Quality Assurance in Laboratory Services

External validation of lab reports shall be done on regular basis. Facility of emergency laboratory services shall be available. Service provided by the department with schedule of charges shall be displayed at the entrance of department. Timely reporting should be ensured.

Blood Bank

Blood bank shall be in close proximity to pathology department and at an accessible distance to operation theatre department, intensive care units and emergency and accident department. Blood Bank should follow all existing guidelines and fulfill all requirements as per the various Acts pertaining to setting up of the Blood Bank. Separate Reporting Room for doctors should be there.

Quality Assurance in blood bank

Hospital should follow standard operating procedure for management of blood bank services including policy on rational use of blood and blood product promulgated by Central/State Government, selection of donors, counseling and examination of donors, consent for donation, issue and transport of blood, storage of blood, cross matching, blood transfusion, and safety precaution.

Blood bank shall validate the test results from external labs on regular basis.

Service provided by the department with schedule of charges shall be displayed at the entrance of department.

Availability of blood group shall be displayed prominently in the blood bank.

Blood bank shall adhere to NACO guidelines and drug and cosmetic act strictly

Blood bank shall practice first in first out policy for reduction of waste. Adequate measures shall be taken to prevent expiry of blood or blood components.

Uses of blood component shall been encouraged.

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Intermediate Care Area (Indoor Patient Department)

General IPD beds shall be categorized as following

Male Medical ward
Male surgical ward
Female Medical ward
Female surgical ward
Maternity ward
Pediatric ward Nursery
Isolation ward

As per need and infrastructure hospital have following wards

Emergency ward/trauma ward
Burn Ward
Orthopedic ward
Post-operative ward
Ophthalmology Ward
Malaria Ward
Infectious Disease Ward
Private ward: Depending upon the requirement of the hospital and catchment area, appropriate beds may be allowed for private facility. 10% of the total bed strength is recommended as private wards beds.

Location

Location of the ward should be such to ensure quietness and to control number of visitors.

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Ward Unit

It is desirable that up to 20% of the total beds may be ear marked for the day care facilities, as many procedures can be done on day care basis in modern times

The basic aim in planning a ward unit should be to minimize the work of the nursing staff and provide basic amenities to the patients within the unit. The distances to be travelled by a nurse from bed areas to treatment room, pantry etc. should be kept to the minimum. Ward unit will include nursing station, doctors' duty room, pantry, isolation room, treatment room, nursing store along with wards and toilets as per the norms. On an average one nursing station per ward will be provided. It should be ensured that nursing station caters to around 40-45 beds, out of which half will be for acute patients and half for chronic patients.

The following quality parameters should be ensured:

- There shall be at least 2.5 meter between centre of two beds to prevent cross infection and allow bedside nursing care.
- Every bed shall be provided with IV stand, bed side locker and stool for attendant. Screen shall be availability for privacy.
- Dedicated toilets with running water facility and flush shall be provided for each ward.
- Dirty utility room with sluicing facility and janitors rooms shall be provided with in ward.
- All wards shall be provided with positive ventilation (except isolation ward) and fans.

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Pharmacy (Dispensary)

The pharmacy should be located in an area conveniently accessible from all clinics .The size should be adequate to contain 5 percent of the total clinical visits to the OPD in one session. For every 200 OPD patients daily there should be one dispensing counter.

Pharmacy should have component of medical store facility for indoor patients and separate pharmacy with accessibility for OPD patients.

Hospital shall have standard operating procedure for stocking, preventing stock out of essential drugs, receiving, inspecting, handing over, storage and retrieval of drugs , checking quality of drugs, inventory management (ABC&VED), storage of narcotic drugs, checking pilferage ,date of expiry, pest and rodent control etc

Patient Conveniences

Number of toilets etc. to be provided as per number of beds of Hospital/OPD loads

Sl. No.	Fitments	Hospital for indoor patients wards For male & female	Hospital with outdoor patient		Administrative building	
			Male	Female	Male	Female
1	Water closet	One for every 6 beds	One for every 100 persons	Two per 100 persons	One for every 25 persons	One for every 15 persons
2	Wash basins	Two for upto 24 persons, add one for every additional 24 beds	One for every 100 persons	One for every 100 persons	One for every 25 persons	One for every 25 persons
3	Baths with shower	One bath with shower for every 6 beds	-	-	One on each floor	One on each floor
4	Bed pan washing sinks	One for each six beds ward	-	-	-	-
5	Cleaners sink	One for each ward	One per floor minimum	One per floor minimum	One per floor minimum	One per floor minimum
6	Kitchen sinks and dish washers	One per ward	-	-	-	-
7	Urinals	One per 20 persons.	One per 50 persons	-	One/20 persons, add one per additional 20 persons. From 101 to 200 persons add @ 3% and over 200 persons add 2.5%	

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Dharmashala or Visitor Dormitory

It is a premises providing temporary accommodation for short duration. The area shall be minimum 0.25 hectares of land adjoining or within the Hospital premises.

Intensive Care Unit and High Dependency Wards

General

In this unit, critically ill patients requiring highly skilled lifesaving medical aid and nursing care are concentrated. These should include major surgical and medical cases, head injuries, severe hemorrhage. Acute coronary occlusion, kidney and respiratory catastrophe, poisoning etc. It should be the ultimate Medicare the hospital can provide with highly specialized staff and equipment. The number of patients requiring intensive care may be about 5 to 10 percent of total medical and surgical patients in a hospital. The unit shall not have less than 4 beds nor more than 12 beds. Number of beds may be restricted to 5% of the total bed strength initially but should be expanded to 10% gradually. Out of these, they can be equally divided among ICU and High Dependency Wards. For example, in a 500-bedded hospital, total of 25 beds will be for Critical Care. Out of these, 13-15 may be ICU beds and 12-15 will be allocated for High Dependency Wards. Changing room should be provided for.

Location

This unit should be located close to operation theatre department and other essential departments, such as, X-ray and pathology so that the staff and ancillaries could be shared. Easy and convenient access from emergency and accident department is also essential. This unit will also need all the specialized services, such as, piped suction and medical gases, uninterrupted electric supply, heating, ventilation, central air conditioning and efficient life services. A good natural light and pleasant environment would also be of great help to the patients and staff as well.

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Facilities

- Nurses' Station
- Clean Utility Area
- Equipment room

Accident and Emergency Services

- 24 x 7 operational emergency with dedicated emergency room shall be available with adequate manpower.
- It should preferably have a distinct entry independent of OPD main entry so that a very minimum time is lost in giving immediate treatment to causalities arriving in the hospital. There

  Should be an easy ambulance approach with adequate space for free passage of vehicles and covered area for alighting patients.
- Lay out shall follow the functional flow.
- Signage of emergency shall be displayed at the entry of the hospital with directional signage at key points.
- Emergency shall have dedicated triage, resuscitation and observation area. Screens shall be available for privacy.
- Separate provision for examination of rape/ sexual assault victim should be made available in the emergency as per guidelines of the Supreme Court.
- Emergency should have mobile X-ray/ laboratory, side labs/plaster room/and minor OT facilities. Separate emergency beds may be provided. Duty rooms for Doctors /nurses / paramedical staff and medico legal cases. Sufficient separate waiting areas and public amenities for patients

  And relatives and located in such a way which does not disturb functioning of emergency services.

  Emergency block to have ECG, Pulse Ox meter, Cardiac Monitor with Defibrillator, Multi parameter Monitor, ventilator etc.

  Stretcher, Wheel chair and trolley shall be available at the entrance of the emergency at designated area.

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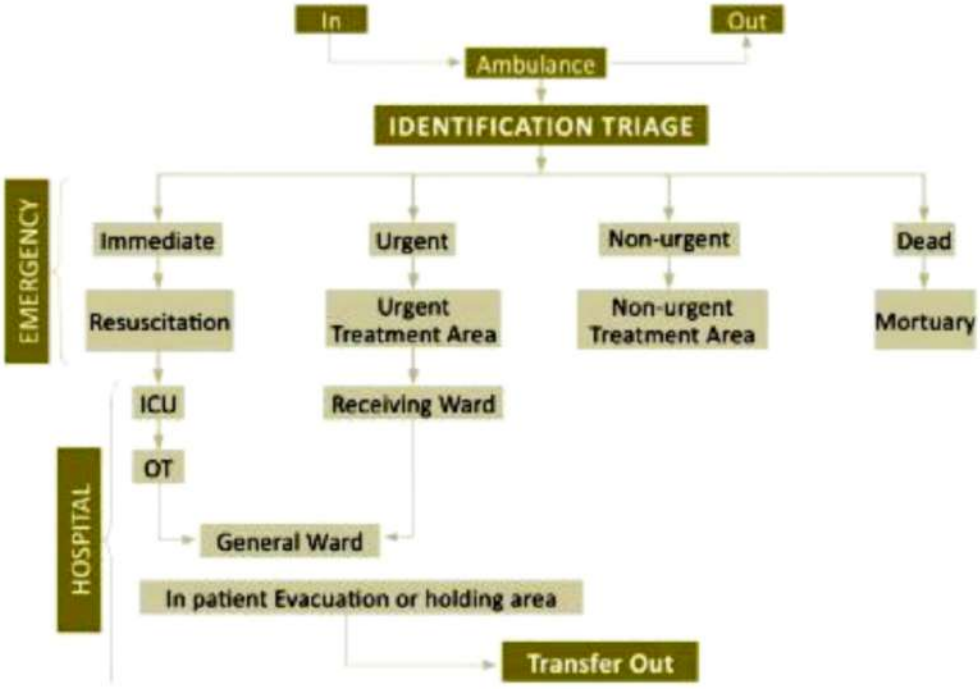
Flow Chart for Emergency Department



Flow Chart for Emergency Department

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Operation Theatre

Operation theatre usually has a team of surgeons' anesthetists, nurses and sometime pathologist and radiologist operate upon or care for the patients. The location of Operation theatre should be in a quite environment, free from noise and other disturbances, free from contamination and possible cross infection, maximum protection from solar radiation and convenient relationship with surgical ward, intensive care unit, radiology, pathology, blood bank and CSSD. This unit also needs constant specialized services, such as piped suction and medical gases, electric supply, heating, air-conditioning, ventilation and efficient lift service, if the theatres are located on upper floors. Zoning should be done to keep the theatres free from micro-organisms. There may be four well defined zones of varying degree of cleanliness/asepsis namely Protective Zone, Clean Zone, A septic Sterile Zone and Disposal or Dirty Zone. Normally there are three types of traffic flow, namely, patients, staff and supplies. All these should be properly channelized.

An Operation Theatre should also have Preparation Room, Pre-operative Room and Post-Operative Resting Room. Operating room should be made dust proof and moisture proof. There should also be a Scrub-up room where operating team washes and scrub-up their hands and arms, put on their sterile gown, gloves and other covers before entering the operation theatre. The theatre should have sink/photo sensors for water facility. Laminar flow of air be maintained in operation theatre. It should have a single leaf door with self-closing device and viewing window to communicate with the operation theatre.

A pair of surgeon's sinks and elbow or knee operated taps are essential. Operation Theatre should also have a Sub-Sterilizing unit attached to the operation theatre limiting its role to operating instruments on an emergency basis only.

Theater after use, such as, dirty linen, used instruments and other disposable/non disposable items should be removed to a room after each operation. Non-disposable instruments after initial wash are given back to instrument sterilization and rest of the disposable items are disposed off and destroyed. Dirty linen is sent to laundry through a separate exit. The room should be provided with sink, slop sink, work bench and draining boards.

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Delivery Suite Unit

The delivery suit unit be located near to operation theatre & located preferably on the ground floor.

The delivery Suit Unit should include the facilities of accommodation for various facilities as given below:

- Reception and admission
- Examination and Preparation Room
- Labour Room (clean and a septic room)
- Delivery Room
- Neo-natal Room
- Sterile Store Room
- Scrubbing Room
- Dirty Room
- Doctors Duty Room
- Nursing Station
- Nurses changing room
- Group C & D room
- Eclamsia Room

Post-Partum Unit

It is desirable that Hospital should have a Post-Partum Unit with dedicated staff and infrastructure to provide Post-natal services, all Family Planning Services, Safe Abortion services and immunization in an integrated manner. The focus will be to promote Post-Partum Sterilization and will be provided if the case load of the deliveries is more than 75 per month.

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Physical Medicine and Rehabilitation (PMR)

The PMR department provides treatment facilities to patients suffering from crippling diseases and disabilities. The department is more frequently visited by out-patients but should be located at a place which may be at convenient access to both outdoor and indoor patients with privacy. It should also have a physical and electro-therapy rooms, gymnasium, office, store and toilets separate for male and female. Normative standards will be followed.

Hospital Administrative and Support Services

Management Information System (MIS)

Computer with Internet connection is to be provided for MIS purpose. Provision of flow of Information from PHC/CHC to other hospital and from there to district and state health organization should be established. Relevant information with regards to emergency, outdoor and indoor patients be recorded and maintained for a sufficient duration of time as per state hospital policy.

Hospital Kitchen (Dietary Service)

The dietary service of a hospital is an important therapeutic tool. It should easily be accessible from outside along with vehicular accessibility and separate room for dietician and special diet. It should be located such that the noise and cooking odours emanating from the department do not cause any in convenience to the other departments. At the same time location should involve the shortest possible time in delivering food to the wards. Apart from normal diet diabetic, semi-solid diets and liquid diet shall be available Food shall be distributed in covered container. Quality and quantity of diet shall be checked by competent person on regular basis.

Note: The location of the kitchen should be at ground floor and outside of the hospital's main building to prevent damages to the hospital in case of fire and easy accessible to the firefighting team.

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Cafeteria

There shall be a separate cafeteria for visitors and hospital's staff.

Financial and Banking service

There shall be a bank and an ATM kiosk for financial transaction which may require during daily hospital routine. It will be beneficial for patients as well as Staff.

Recreational and fitness club

There shall be a recreational center for patient's fitness and exercise requirements like orthopedic exercise. This center will also be accessible to staff to maintain their fitness during the stay in the hospital premise.

Central Sterile Supply Department (CSSD)

As the operation theatre department is the major consumer of this service, it is recommended to locate the department at a position of easy access to operation theater department. It should have a provision of hot water supply. Department shall develop and implement the Standard Operating Procedures (SOPs) for transfer of unsterile and sterile items between CSSD and departments, sterilization of different items, complete process cycle, validation of sterilization process, recall, labeling, first in- first out, calibration and maintenance of instruments.

Hospital Laundry

It should be provided with necessary facilities for drying, pressing and storage of soiled and cleaned linens. It may be out sourced.

Medical and General stores

Medical and general stores should have vehicular accessibility and ventilation, security and firefighting arrangements. Hospitals shall have standard operating procedure for local purchase, indent management, storage preparation of monthly requirement plan and inventory analysis.

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For Storage of Vaccines and other logistics

Cold Chain room: 3.5m x 3m in size

Vaccine & Logistics room: 3.5m x 3m in size

Minimum and maximum Stock shall be 0.5 and 1.25 month respectively. Indent order and receipt of vaccines and logistics should be monthly. Timely receipt of required vaccines and Logistics from the required Stores and channel should be ensured.

Mortuary

It provides facilities for keeping of dead bodies and conducting autopsy. The Mortuary shall be located in separate building near the Pathology on the Ground Floor, easily accessible from the wards, Accident and emergency Department and Operation Theatre. It shall be located away from general traffic routes used by public.

Postmortem room shall have stainless steel autopsy table with sink, a sink with running water for specimen washing and cleaning and cup-board for keeping instruments. Proper illumination and air conditioning shall be provided in the post mortem room.

A separate room for body storage shall be provided with at least 2 deep freezers for preserving the body. There shall be a waiting area for relatives and a space for religious rites.

Engineering Services

Electric Engineering Sub Station and Generation

Electrical load requirement per bed = 3 KW to 5 KW.

Electric substation and standby generator room should be provided.

Illumination

The illumination and lightning in the hospital should be done as per the prescribed standards

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Sl. No.	Department	Illumination (lux)
1	Reception and waiting room	150
2	Wards	
2a	General	100
2b	Beds	150
3	Operation Theatre	
3a	General	300
3b	Tables	Special Lighting
4	Laboratories	300
5	Radiology	100
6	Casualty and Outpatient Departments	150
7	Stairs and corridor	100
8	Dispensaries	300

Emergency Lighting

Shadow less light in operation theatre and delivery rooms should be provided. Emergency portable lights units should be provided in the wards and departments

Call Bells

Call bells with switches for all beds should be provided in all types of wards with indicator lights and location indicator situated in the nurse's duty room of the wards.

Ventilation

The ventilation in the hospital may be achieved by either natural supply or by mechanical exhaust of air.

Mechanical Engineering

Air-conditioning and Room Heating in operation theatre and neo-natal units should be provided. Air coolers or hot air convectors may be provided for the comfort of patients and staff depending on the local needs. Hospital should be provided with water coolers and refrigerator in wards and departments depending upon the local needs.

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Public Health Engineering

Water Supply

Arrangement should be made for round the clock piped water supply along with an overhead water storage tank with pumping and boosting arrangements.

Water requirement per bed per day = 450 to 500 liters

(Excluding requirements for AC, Fire-fighting, Horticulture and steam).

Drainage and Sanitation

The construction and maintenance of drainage and sanitation system for waste water, surface water, sub soil water and sewerage shall be in accordance with the prescribed standards. Prescribed standards and local guidelines shall be followed.

Other Amenities

Disabled friendly, WC with basins wash basins as specified by Guidelines for disabled friendly environment should be provided.

Waste Disposal System

As per National guidelines on Bio-medical Waste (Management & Handling) Rules, 1998

Mercury Waste Disposal

- As mercury waste is a hazardous waste, the storage, handling, treatment and disposal practices should be in line with the requirements of Government of India's Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008, which may be seen at Website: www.cpcb.nic.in.
- Mercury-contaminated waste should not be mixed with other bio medical waste or with general waste. It should not be swept down the drain and wherever possible, it should be disposed of at a hazardous waste facility or given to a mercury-based equipment manufacturer.
- Precaution should be taken not to handle mercury with bare hands and as far as possible; jewellery should be removed at the time of handling mercury. After handling mercury, hands must be carefully washed before eating or drinking. Appropriate personal protective equipment (rubber gloves, goggles / face shields and clothing) should be used while handling mercury.
- Mercury-containing thermometers should be kept in a container that does not have a hard bottom. Prefer a plastic container to a glass container, as the possibility of breakage will be less.

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Housekeeping services

Hospital shall develop and implement standard operating procedure for cleaning techniques, pest control, frequency and supervision of housekeeping activities.

Medical Gas

All gases may preferably be supplied through manifold system.

Cooking Gas

Liquefied petroleum gas (LPG) will be used for cooking.

Building Maintenance

Provision for building maintenance staff and an office cum store will be provided to handle day to day maintenance work.

Record Maintenance (Medical Record Department)

Hospital shall have dedicated medical record department to store patient's record and other data pertaining to hospital.

Committee or Conference Room

A meeting or a committee room for conferences, trainings with associated furniture and with screen projector.

Hospital Transport Services

- Hospital shall have well equipped Basic Life support (BLS) and desirably one Advanced Life Support (ALS) ambulance.
- Ambulances shall be provided with communication system.
- There shall be separate space near emergency for parking of ambulances.
- Service ability and availability of equipment and drugs in ambulance shall be checked on daily basis.

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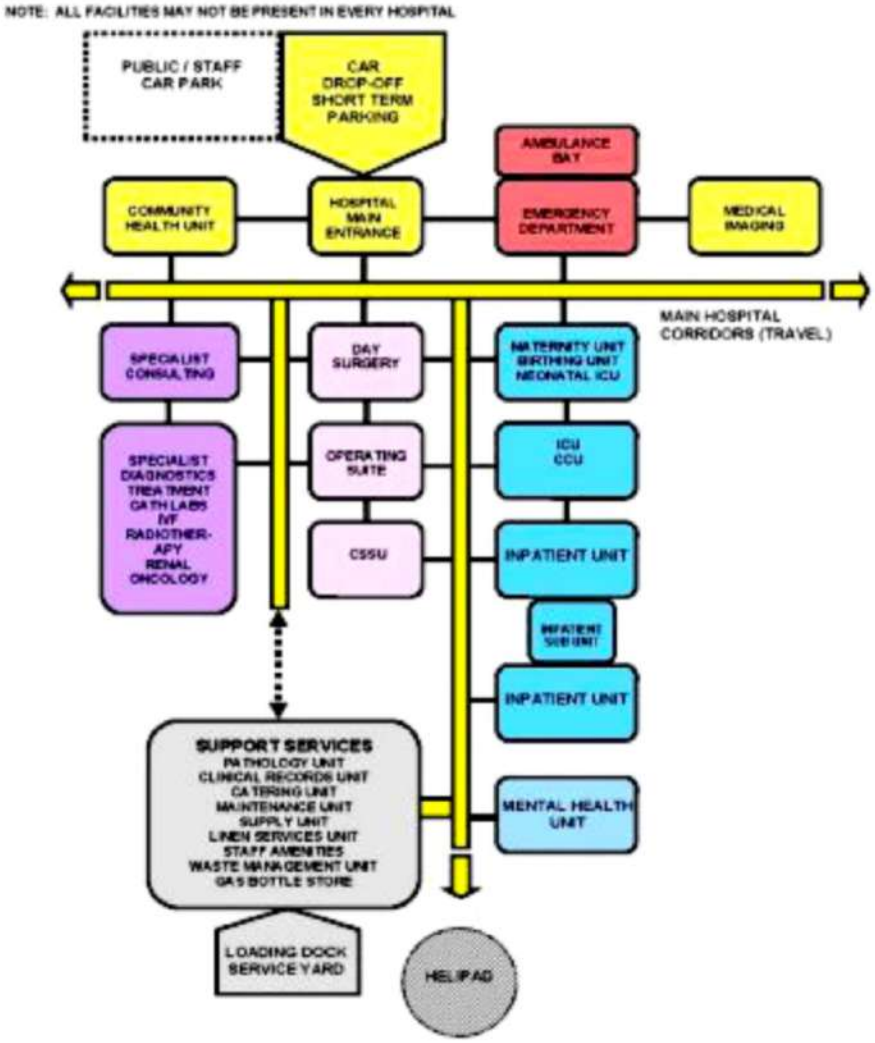
An Indicative layout plan



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An overview of a Hospital Management System

A Hospital management system is integrated information systems designed to manage the administrative, financial and clinical aspects of a hospital. Earlier the management of hospitals was completely based on papers and several notebooks which were very much difficult to maintain and searching n managing was tiresome. Beginning of 90th decade more and more hospitals began to work under a centralized management system which not only increased the efficiency of work also the time invested to find n manage date drastically become low .

Modern hospital management system encompasses paper based information processing as well as data processing machines. The central management systems use both hard copy data as well as soft copy data to handle the entire framework.

Below are some salient features of the Hospital management system:-

- Keeping records of patients , his/her treatments information like disease , doctors handling or responsible and logging of daily treatments
- Administration : Single window to retrieve and input data of various values like patient payment info, daily transaction, sale & purchase details , inventory management etc
- Daily official communications
- Employee records
- Evaluation of hospital performance and cost based on calculation of values also projection of long term business

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REGULAR OPERATION FLOW OF THE

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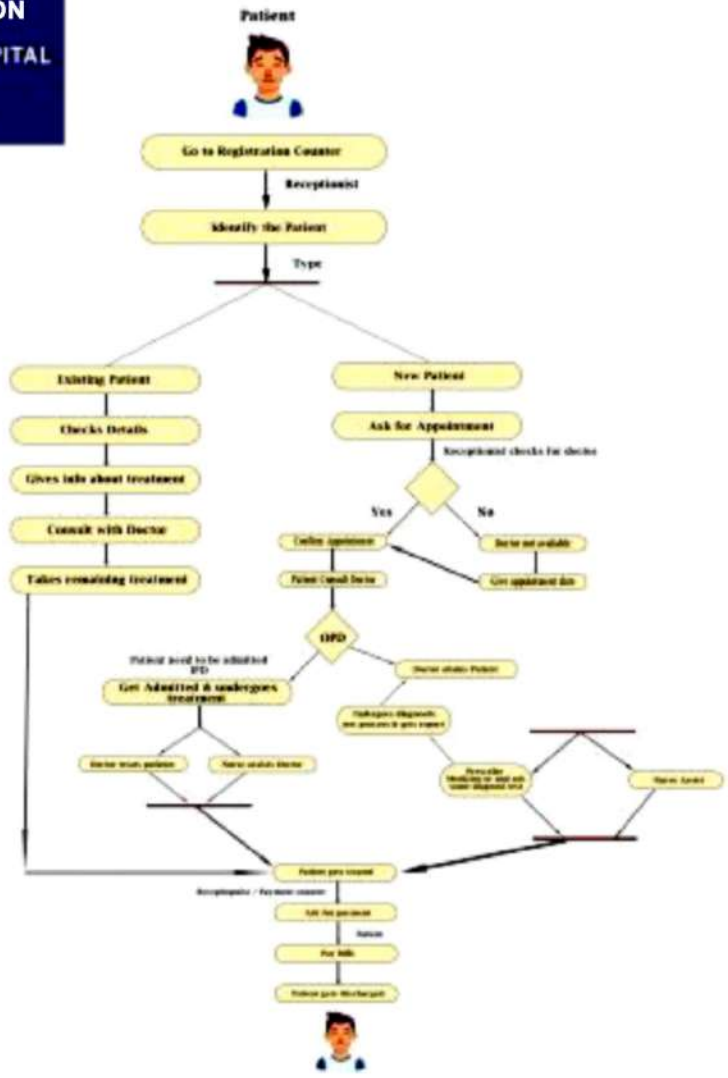
ACTIVITY DIAGRAM



HOSPITAL

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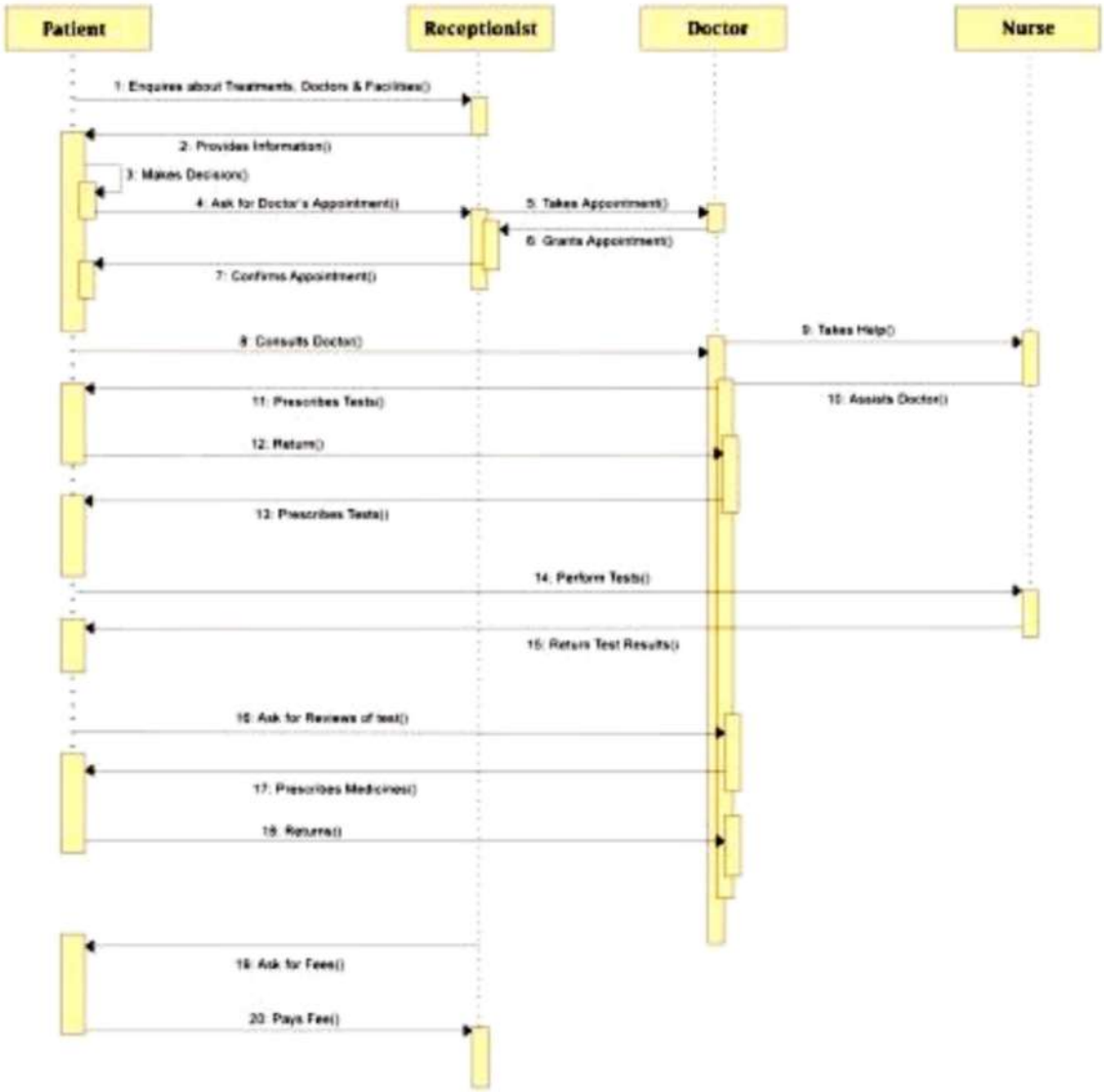
MULTI SPECIALTY HOSPITAL

SEQUENCE DIAGRAM



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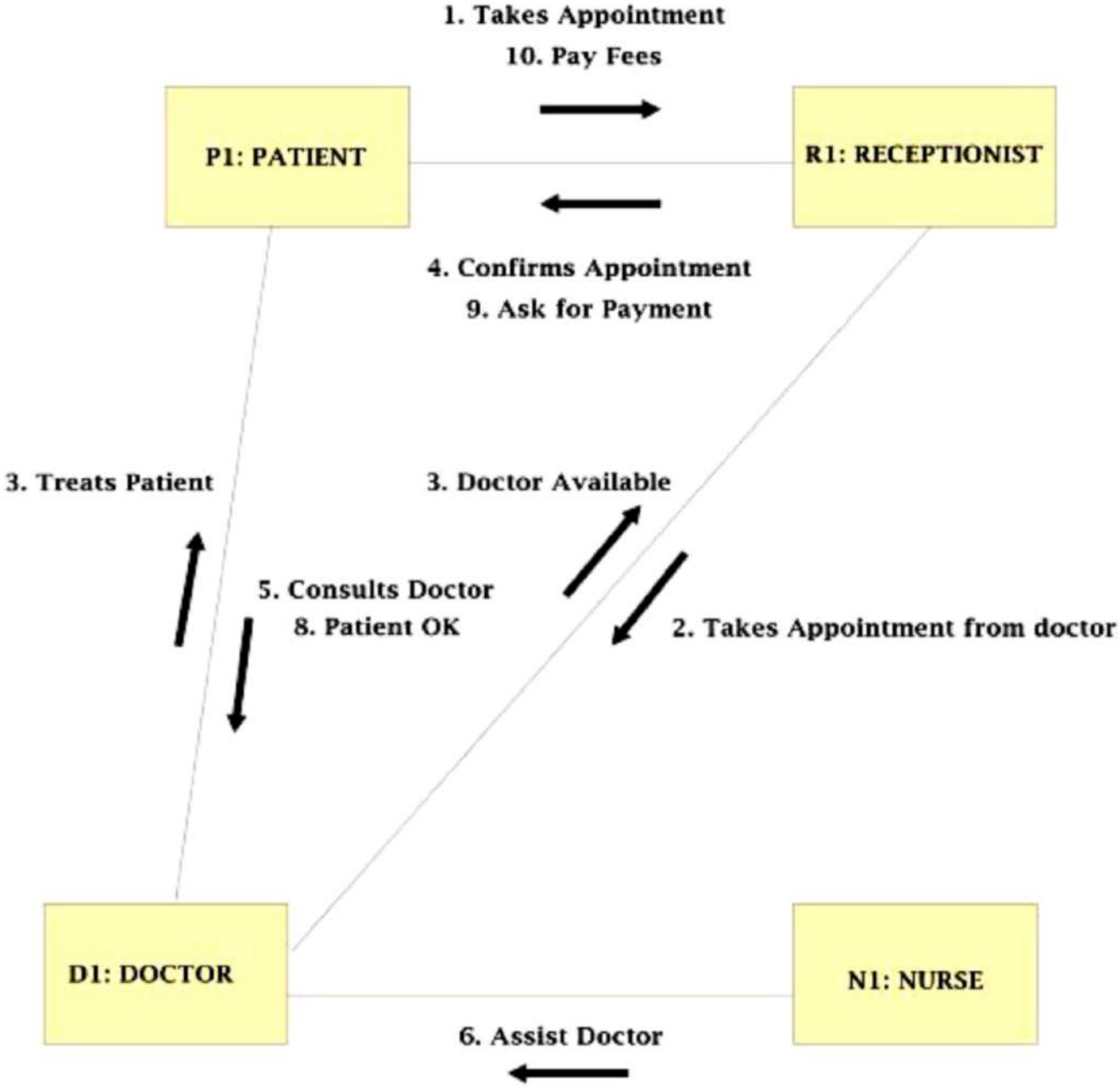
COLLABORATION DIAGRAM



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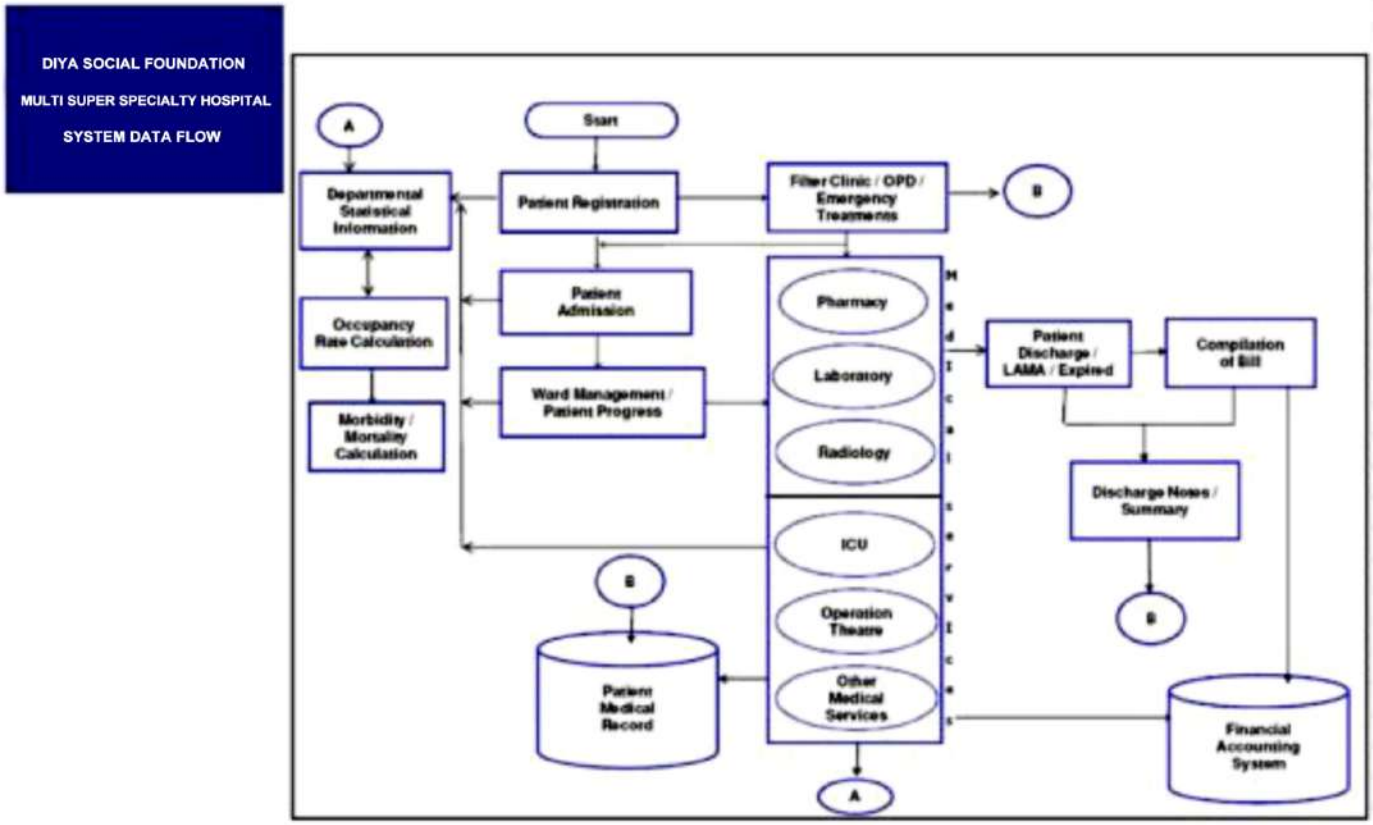
HOSPITAL MANAGEMENT SYSTEM DATA FLOW



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Modules of Hospital Management system

- Patient Management
- War/Cabin Management
- Consultant Management
- Roster Management
- Emergency Services management
- OT Management
- Intensive Care unit/ Child Care Unit / NICU /PICU
- Diagnostic Management
- Pharmacy Management
- HR Payroll Management
- Blood Bank Management
- Food Department Management
- Laundry Management
- Billing System
- Billing System
- Accounts Management
- In-House Mailing system
- News or Info forum for hospital news, meetings circular etc.
- Medical Equipment Maintenance
- Security Management
- Access Control System
- Integration of Smoke/ Fire detection and suppression system
- Website for the hospital & Its Features

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Explanation of each module of HMS

1. **Patient Management:** It's the module which will handle n store all the patient records. This module caters the chain from end to start point. It will have 3 sub modules :
   a) **Registration:** In this system the user or employee will able to register according to the hierarchy. Upon registering a unique username or user id and password will be generated. This user id or user name will be used to login into the system to do necessary work related to specific task like inventory checking, addition and deletion of records. There will be proper privilege level according to the hierarchy.
   b) **Patient Admission and Discharge Record:** For in Patient – If the new patient gets admitted to the system then a unique record is generated for each patient and patient details along with eh room/bed reservation and its case papers and other details will be stored in the system. And also room/bed allotment is taken care. Once patient gets a discharge then his check out from hospital along with the billing details will be taken care of by the system.

   For Out-Patient – If the new patient visits the doctor in OPD ,the system then generate a unique record for each patient and patient details along with the its case papers and other detail are stored in the system . Billing details are also taken care of by the system.
   c) **Patient Record Maintenance:** The system maintains a details record of each patient who will be admitted to the hospital. The patient case papers will be generated automatically and will be maintained in proper format. Whenever a regular patient will visit hospital his complete diagnosis chart along chart along with case papers will be provided by the system. Also patient will be able to view his information and diagnosis details online by logging on to the system on the internet which will be of great help to patient as well as their family doctors.

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2. **Bed/Cabin/Ward Management**

The HMS shall generate reports on bed availability about the following information: ward name, bed number, occupied / unoccupied.

3. **Consultant Management**

The will manage and keep track of the consultants who are practicing in the hospital. The tracked information will cover their entry and exit time, schedule etc. To keep the time record it needs some hardware like Biometric Attendance Device.

4. **Roster Management**

The entire permanent employee including doctors, nurses and other staffs duties and rosters will be managed by this module.

5. **Emergency Services Management**

There are some emergency services related to the hospital such as ambulance and organ donation, blood donation, etc. The system keeps track of all these activities online and will be preparing details reports of these activities.

6. **OT Management**

The system keeps track of the activities of Operation Theater, the performing doctor/consultant/surgeon, nurses and other staffs. An independent inventory will also be managed here for the equipment, apparatus, medicines and other usable things. The further cost for using OT will blind here which will aggregated with the master bill for the patient.

7. **ICU/CCU/NICU/PICU Management**

Special reports will be maintained for the patients in ICU and the records of the operations/treatments performed on them will be maintained. The extra charges and special allowances charged to patients in this category will also be taken care of. The module will also manage the schedule of the duty doctors and nurse and the inventory for the different products / services in ICU.

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8. Diagnostic Management

The system keeps track of the laboratories, radiology and imaging center in the hospital. The equipment purchasing, inventory and billing of the purchase will be maintained by the system. The system keeps track of the testes performed on different patients and its records will be maintained by the system.

9. Pharmacy Management

The pharmaceutical department is a very important part of the hospital .The system keeps track of the inventory. The patient prescription details and the information about the category wise medicines are stored. The system will inform the user in advance in case of the storage updating and inventory maintenance .The records for each patient and its bill will be maintained by the system and it will be added to the patient bill when he will be discharged.

10. Blood bank management

The system keeps the track of blood bank. It will generate automated reports keeping track of inventory for stock of bloods for different blood group and their expiry. With that the system will maintain a detail database of different blood donors according to their blood group. When a need will arise for a certain group of blood donors then the system will produce name and other contact details of the blood donors related to that particular blood group. It will make it easier to contact them in emergency situation.

11. Food department automation

The system keeps track of all the activities related to food department. If some patients are kept on the prescribed diets then it will be informed to the department automatically. Also it keeps track of all the other activities related to this department.

12. Laundry Management

Since the hospital has a large number of patients coming in and out every day hence there is a large overhead on laundry department also. The system keeps track of different activities in this department and will notify to the user regarding information online and will also keep track of the inventory.

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13. Billing system

The entire billing system for the patient will be automatically created. It will include the expenses of all kind and in the end when the patient gets a discharge the entire bill will be generated automatically. The bill will contain all the expense, which should be charged to the patient for the period for which he was admitted to the hospital. There will be also being a provision of discount in terms of percentage (%) or amount. Out Patient billing is also taken care-of.

14. HR Payroll System

The system maintains the entire payroll system of the hospital. The staff pays slips as well as addition and deduction to their salaries are maintained by the system. The system also keeps track of the staff's paid and unpaid leaves. In addition it keeps track of the entire staff of the hospital. The details of each and every staff (User) will be maintained online and a username and password will be provided to concern users so that they can log on to the system and perform activities related to their concern department. Also a user with access and rights is provided and can add, delete and modify records of the existing users to the system

15. Accounts Management

All the financial transaction will forward to accounts system. The other expenditures and income will maintain through journal entry which will lead to calculate the profit and loss of the organization. Usually this accounts system can generate customize ledger, trial balance, balance sheet and income statement/ profit &loss statement.

16. In-house mailing system

This is a special feature provided by them system. Since the system is browser based it makes it that much simpler to keep track of different entities online. A special mail server, which will be dedicated to the system, will be maintained on through which the total mailing system will work. The mailing system will help doctors and other users to communicate each other online as well as keep track of their busy.

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17. **Accounts management**

All the financial transaction will forward to accounts system. The other expenditures and income will maintain through journal entry which will lead to calculate the profit and loss of the organization. Usually this accounts system can generate customized ledger, trial balance, balance sheet and income statement / profit & loss statement.

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19. **News forum for flashing news , articles and important meetings**

The system will also provide a sort of "Discussion forum" to the users of the system through which they can communicate to each other. They can post articles and other important news related to their organization and field. They can convey important news to all the others in the organization through this channel. This will act as the digital notice board.

20. **Medical Equipment maintenance system**

The total medical equipment maintenance will be taken care of. The items included will be disposable, non-disposable equipment and their proper maintenance.

21. **Security management**

This module will play functional role to manage the security cameras used in the premises and it will be integrated in the software. Thus the security personnel and the management body will able to keep track the activities in the hospital premise even from any remote place where connectivity is available.

Note: This particular system is subject to implantation of required hardware.

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22. Access control system

This module will define who can access which part of the hospital. Through swipe card system individuals will be allowed or restricted to some particular rooms like strong room or server room in the hospital.

Note: This system is subject to implementation of required hardware.

23. Integration of smoke/ fir detection and suppression system

If the fire detection and suppression hardware is used/ plan to be used in the hospital premises, it is possible to integrate that system to our proposed HMS. In case of fire breakout the operator can be pin point the place from this system and can necessary steps accordingly.

Note: This particular system is subject to implantation of required hardware.

Features of the website for the hospital

- Detail information like introduction and inception of the hospital
- Information regarding the facilities and department which hospitals offers
- Various high officials like directors and doctors information's
- Online registration for the visitors for weekly or monthly newsletter.
- Current health issue related news like pandemic disease Chinese Virus outbreak etc
- Feedback and contact forms
- Health tips for the Visitors.
- Mailing system for the users who are seeking information
- Telemedicine Window for patients to connect with doctors.

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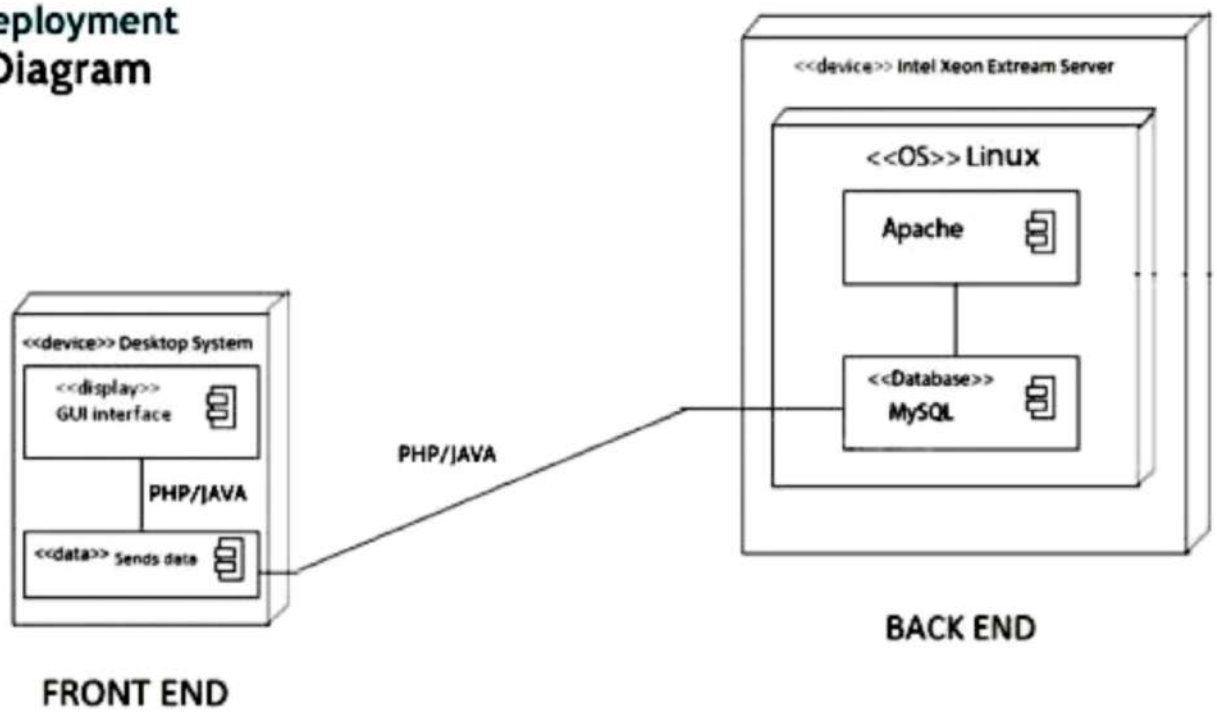
Technical Deployment Diagram



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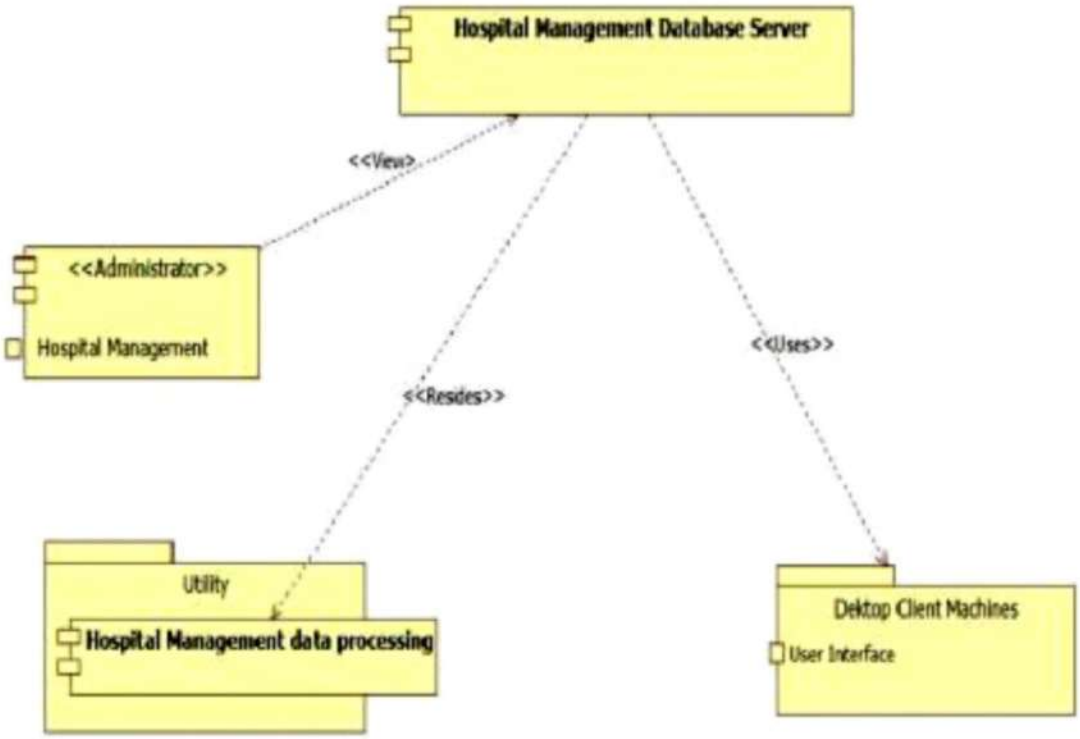
Technical

Component Diagram



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CHARITABLE HOSPITAL

BUDGET

Approximate Budget of Construction of Hospital & Equipment for 300 Beds

SL.	ACTIVITIES	AMOUNT (INR)
1.	Acquisition of Land with Registration & Tax :- One acre@ 1,0000000/- INR x 20 acres (approx.) *Note: In case if we do left some funds that will be invested on other departments or equipments*.	20,00,00,000
2.	Construction & Planning of Boundary Wall & Fencing, Pilling foundation, Hospital Building, Staff Quarters, Doctor Quarters, Cafeteria, Nursing Staff Quarters, In hospital Temple, Staff Parking, Modernized Park for patients & children, Visitors Parking, Building Campus Roads, Sewerage, flushing center, Heavy Lift OTIS Company etc.	180,00,00,000
3.	30 Nos. Desktops: Rs. 45000 each Two IBM Server : Rs 1,50000x2	16,50,000
4.	200 Nos. CCTV, 80 Channel DVR, 60 TB Hard Disk Drive, Power Supply, D-Link Wire, Inter Channel, BNC, Power connector, Memory Card, Camera Box (Approx)	20,00,000
5.	Electrical connection with Equipment (Light, ceiling fan, spot light, wall fans, wires switches, plugs, BV boxes, Main switches set, Centralized ACs, generator, Online UPS batteries, Auto Sensor Opening Entrance Door Entry)=As per requirement, Patient Calling System with Electronic Display, 200 nos. 5star 1.5 ton split AC.	6,00,00,000
6.	Plumbing connection with equipment (Bore connection, Pump connect, fire pump, Fire Sprinkler's connection, Water tank, washroom tapes, basins etc)	1,05,00,000
7.	Oxygen Manifold Point & Connection = 30,000/- INR each Point & Extension 40/- INR per meter = Total Approx Cost	1,00,00,000

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8.	Total Furniture Set (General Patients Bed, side tables. stretchers, chairs, office tables, office chairs, ICU & critical Patients beds)	3,50,00,000
9.	Total Imaging diagnosis equipment (Fixed X-Ray Machine & Mobile X-ray Machine, CT Scan Machine with development Machine, MRI Machine, C-Arm Machine, USG Machine)	12,08,40,000
10.	Single Super Specialty Operation Theatre with Laminar Air Flow full setup with OT table, Anesthesia Machine.	1,05,00,000
11.	Single General Operation Theatre without Laminar Air Flow full setup with OT table, Anesthesia Machine, OT Light, OT Door, Flooring Fully Furnished@37,20,000 x 5nos.	1,86,00,000
12.	Single Adult Ventilator Machine	21,00,000
13.	Single Pediatric Ventilator Machine	6,00,000
14.	5 Electric Beds Hospital Bed Covid-19 x Rs. 1.25 lac per bed	6,25,000
15.	10 Fully Motorized ICU Bed 5 Functions	8,00,000
16.	10 Standard Steel Motorized Hospital Bed	9,50,000
17.	20 Beds ICU/Critical care Unit Set-Up with monitor, syringe pump & other vital equipments.	40,00,000
18.	20 Beds, NICU Setup including body warmers & Photo-therapy machine.	40,00,000
19.	Single Audit Defibrillator	9,00,000
20.	10 Beds Dialysis Setup including RO Plant	1,20,00,000
21.	10 Beds Emergency Casualty Setup	10,00,000
22.	Multi Specialty Pharmacy setup with Basic Stock	10,00,000
23.	ENT Dept.	1,00,00,000
24.	Malaria Ward	1,00,00,000
25.	Urology Dept.	3,00,00,000
26.	De Addiction Center	2,00,00,000
27.	Cardiology Dept.	3,00,00,000
28.	Palliative Care	2,00,00,000
29.	Neonatology Dept.	2,00,00,000
30.	Psychiatry Services cum Rehabilitation Center	2,00,00,000
31.	Medical Diagnostic Laboratories	3,00,00,000
32.	Histopathology Dept.	4,00,00,000

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33.	Hematology & Serology Dept.	4,00,00,000
34.	Microbiology Dept.	4,00,00,000
35.	Biochemistry Dept.	4,00,00,000
36.	Pediatrics & Neonatology Dept.	4,00,00,000
37.	Nephrology Dept.	4,00,00,000
38.	OPD	3,00,00,000
39.	Gastro-Entomology Dept.	4,00,00,000
40.	Casualty / Emergency	4,00,00,000
41.	Monitoring Dept.	3,00,00,000
42.	Ophthalmology Dept.	4,00,00,000
43.	Physiotherapy Dept.	3,00,00,000
44.	Orthopedics Dept.	3,50,00,000
45.	Gynecology Dept.	4,50,00,000
46.	Central Sterile Supply Depot	4,00,00,000
47.	OT (ICCU)	7,00,00,000
48.	Plastic Surgery Unit	2,00,00,000
49.	Dermatology Dept.	2,00,00,000
50.	Gastrointestinal Surgery	3,00,00,000
51.	Endocrinology Dept.	2,00,00,000
52.	Neuro Surgery	2,00,00,000
53.	Otorhinolaryngology Dept.	2,00,00,000
54.	Dharmashala or Visitor Dormitory	1,00,00,000
55.	Delivery Suite Unit	3,00,00,000
56.	Cold Chain room & Vaccine & Logistics Room	2,00,00,000
57.	Diagnostics	4,00,00,000
58.	Blood Bank Setup	16,00,000
59.	Dental Dept.	1,00,00,000
60.	Mortuary	1,00,00,000
61.	New Born Baby ward	2,00,00,000
62.	General Ward	2,00,00,000
63.	Burn Unit	1,50,00,000
64.	Single Bed Cath-Lab Setup 1 Cr x 3	3,00,00,000
65.	Intercom & LAN setup	5,00,000
66.	Nos. all in one Printer (10)	1,50,000
67.	Treatment Facility for Cancer patients 20 Beds with Medical equipment	25,00,00,000

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68.	AC Cardiac Ambulance @38,00,000/- INR x 2 Ambulance	76,00,000
69.	AC Ambulance full setup @12,00,000/- INR (4 Nos.) AC ambulance Approx on road price	48,00,000
70.	33 Seat Staff Bus with AC Bus @33,00,000/-	33,00,000
71.	Approx. Doctor Salary, Nursing Staff Salary,Audit Salary, Paramedical Staff Salary, Vehicle Drivers Salary, Medical Staffs Salary, Top Management inc. Directors and Officers, Marketing, Operations, Administration, Cleaning Staff, Security Personnel's Salary, Gardener, Server Operator Salary, Electrical Staff Salary, Lift Maintenance Staff Salary, Cook Salary for 1 year.	20,00,00,000
72.	CRM for Hospital Management System Software	1,00,00,000
73.	RO Plant Setup	50,00,000
74.	Waste Management Disposal Setup	1,50,00,000
75.	Overall Maintenance	5,00,00,000
76.	Non-Medical	2,50,00,000
77.	Utility Cost	2,50,00,000
78.	Administrative Overhead	3,00,00,000
79.	Others/Handling Charges	1,00,00,000
80.	Delivery Charges	3,00,00,000
81	Architecture, Planning & Designing (Model) & Audit Chartered Account.	1,00,00,000
82.	Miscellaneous	5,00,00,000
83.	Preliminary Expenses	20,00,00,000
84.	Working Capital	35,00,00,000
	SUB TOTAL	474,00,15,000
	CONTINGENCY CHARGES @5%	23,70,00,750
	TOTAL AMOUNT	497,70,15,750

Total Amount = **497,70,15,750**/- INR (Approx **498cr** INR)

In words :- Four Hundred Ninety Seven Crore Seventy Lakh Fifteen Thousand Seven Hundred Fifty Only

IMPORTANT NOTICE :- THIS PROJECT IS DESIGNED WITH A MOTIVE OF SOCIAL WORK WITH A CHARITABLE CAUSE. WITH THIS PROJECT WE GENERATE JOB'S FOR NEEDY, GIVE WORLD CLASS MEDICAL FACILITY TO POOR AND NEEDY,TO PRODUCE SOME OF THE BEST DOCTOR'S IN INDIA TO SERVE OUR NATION FAITH FULLY BY GIVING THE BEST MEDICAL EDUCATION AT ALL. OUR MOTTO IS TO SERVE THE HUMANITY AND BRING DOWN THE MORTALITY RATE. A SMALL CHANCE TO SERVE MANKIND.

FOR, DIYA SOCIAL FOUNDATION
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CHAIRMAN

DIYA SOCIAL FOUNDATION * ESTD-2017 * WEST BENGAL

Hospital Rules & Restrictions within the Hospital Premises

- **TOBACCO** - All Tobacco products are strictly prohibited (Smoking, Chewing, Pan / Pan Masala) in the Hospital premises.
- **SERVICES** – Services of Medical, Nursing, Housekeeping and Maintenance staffs are available round the clock. In case of any difficulty contact your Nursing Station or Public Relation Officer of your floor / Doctor on Duty / AMS.
- **FOOD AND BEVERAGES** - No Outside food or beverages are allowed in the hospital premises. Patient will be served therapeutic diet as per doctor's advice in their respective room. Attendants will be served in the Dining Hall /Cafeteria. (Except bed tea on demand). No food / beverages are allowed for visitors in the room.
- **VISITING HOURS** - Visiting Hours should be strictly adhered to. All patient coming to the hospital, have very low resistance to fight infection. Visitors can be source of infection to them. To avoid inconvenience to the patient, one visitor at a time will be allowed in the Wards between 5:00 – 7:00 pm (summer) and 4:00 – 6:00 pm (winter) daily. In ICU, Morning visiting hours will be from 10:30 – 11:00 am and Evening from 5:00 – 5:30 pm.
- **ATTENDANTS** – Only one attendant is allowed with all categories of patients for the reason given above. Extra attendant is allowed in case of sick / critical patients on the discretion of NS / MS. A mattress with bedding will be provided for the attendant from 8:00 pm – 6:00 am only, on payment of charges as per prevalent rates.
- **OT/HDU/ICU TRANSFER** – The attendants have to vacate the room whenever the patient is shifted to any critical care area or for a surgery / procedure. However, attendants have a choice of retaining the room (subjected to availability) while patient is in intensive / critical care area. Additional charges for the retained room shall be applicable on daily basis. Attendants can also use the facility for night stay (one attendant per patient) located on building no.1.

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- **SCHEDULE OF CHARGES** – Hospital charges as already explained and are not negotiable. For any emergency admission certain advance amount is to be deposited as per the prevalent rates for different category of rooms at the time of admission. For planned admission 100% deposit to be made as per the Estimated Cost of Treatment given. An Estimate and the final bill charges may vary because of change in the medical treatment plan depending on patient's condition during hospital stay. Each patient needs to maintain a minimum deposit. Patients should ensure sufficient advance deposit and timely deposit of bill amount on daily basis after receiving provisional bills given to all admitted patients to avoid inconvenience at the time of final billing and patient's discharge.

- **ADMISSION ADVANCE** – Admission advance must be paid at the time of admission to cover the expenses for surgery / treatment. Personal cheques are not accepted.

- **LEAVE PERMISSION** – Leave permission for admitted panel patients. Leave permission to be availed from concerned office. Management is no-way responsible and shall not allow them leave during admission period except under special circumstances.

- **SETTLEMENT OF BILLS** – Settlement of bills must be done on presentation of the bills. Pending payments as per the due slip should be cleared immediately. Please get receipt for all payments made.

- **DISCHARGE** – Check out time is 12:00 Noon. Patients discharged between 12 Noon to 6 M will be charged ½ day's room rent. Please clear your bills before 12 noon and 6 PM.

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- **PATIENT'S BELONGINGS** – The management will not in any way whatsoever, be responsible for any loss or damage to the patient's belongings or any other property from the hospital room, locker or any other part of the hospital, including theft or pilferage.

- **AIR CONDITIONING** – Please ensure that all the windows / doors are closed for effective Air – conditioning.

- **WASHING OF CLOTHES** – Washing of clothes is strictly prohibited inside the hospital. Out station patients can give their clothes to the Dhobi for washing.

- **TIPS / BAKSHISH** - Please do not offer any Bakshish / tip to any of the hospital employee.

- **YOUR RESPONSE** – For evaluation of Hospital services, you are requested to fill up the Patient's Response Form provided to you. Your suggestion will help us to serve you better.

- **CHANGE OF ROOM** - The Management shall have the right to change the room allotted to the patient at any time, without assigning any reason thereof and without any previous notice, or to shift the patient to any other suitable accommodation.

- **VIOLENCE** - Violence against medical, paramedical, other hospital staff and damage to hospital property are punishable offences.

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DISTRICT PROFILR

Darjeeling Bengali, Nepali is a city in the northernmost region of the Indian state of West Bengal. Located in the Eastern Himalayas, it has an average elevation of 2,045 metres (6,709 ft). To the west of Darjeeling lies the easternmost province of Nepal, to the east the Kingdom of Bhutan, to the north the Indian state of Sikkim, and farther north the Tibet Autonomous Region region of China. Bangladesh lies to the south and southeast, and most of the state of West Bengal lies to the south and southwest, connected to the Darjeeling region by a narrow tract. Kangchenjunga, the world's third-highest mountain, rises to the north and is prominently visible on clear days.

In the early 19th century, during East India Company rule in India, Darjeeling was identified as a potential summer retreat for British officials, soldiers and their families. The narrow mountain ridge was leased from the Kingdom of Sikkim, and eventually annexed to British India. Experimentation with growing tea on the slopes below Darjeeling was highly successful. Thousands of labourers were recruited chiefly from Nepal to clear the forests, build European-style cottages and work in the tea plantations. The widespread deforestation displaced the indigenous peoples. Residential schools were established in and around Darjeeling for the education of children of the domiciled British in India. By the late-19th century, a novel narrow-gauge mountain railway, the Darjeeling Himalayan Railway, was bringing summer residents into the town and carrying a freight of tea out for export to the world. After India's independence in 1947, as the British left Darjeeling, its cottages were purchased by wealthy Indians from the plains and its tea plantations by out-of-town Indian business owners and conglomerates.

Darjeeling's population today is constituted largely of the descendants of the indigenous and immigrant labourers that were employed in the original development of the town. Although their common language, the Nepali language, has been given official recognition at the state and federal levels in India, the recognition has created little meaningful employment for the language's speakers nor has it increased their ability to have a significantly greater say in their political affairs. The tea industry and tourism are the mainstays of the town's economy. Deforestation in the region after India's independence has caused environmental damage, affecting the perennial springs that supply the town's water. The population of Darjeeling meanwhile has exploded over the years, and unregulated construction, traffic congestion and water shortages are common. Many young locals, educated in government schools, have taken to migrating out for the lack of jobs matching their skills. Like out-migrants from other regions of northeastern India, they have been subjected to discrimination and racism in some Indian cities.

Darjeeling's culture is highly cosmopolitan—a result of diverse ethnic groups intermixing and evolving away from their historical roots. The region's indigenous cuisine is rich in fermented foods and beverages. Tourists have flocked to Darjeeling since the mid-19th century. In 1999, after an international campaign for its support, the Darjeeling Himalayan Railway was declared a World Heritage Site by UNESCO. In 2005, Darjeeling tea was given geographical indication by the World Trade Organization as much for the protection of the brand as for the development of the region that produces it.

Toponymy

At the time of the first British arrival, Darjeeling was known among its Lepcha inhabitants as Dorje-ling, or the "Place of the Thunderbolt. According to the Oxford Concise Dictionary of World Place Names, Darjeeling is derived from the Tibetan Dorje ling or Dorje-glin, meaning "Land of Dorje," i.e. of the thunderbolt, the weapon of the Hindu god Indra.

History

1780 to 1835

Darjeeling, Nepal, Bengal, Bhutan, Sikkim, and Tibet A Lepcha girl and a Buddhist lama in Dorjiling from Joseph Dalton Hooker's Himalayan Journals, volume I, 1854 Darjeeling lies between the Mechi and Teesta rivers in the Eastern Himalayas. In the 18th century, it was part of a boundary region that had stirred ambitions and insecurities in several South Asian states. For the greater part of the century, the Chogyal-ruler of the northern Kingdom of Sikkim had asserted possession of this territory. In the closing decades, the Gurkha kingdom of Nepal expanded eastwards to bring Darjeeling into its territory. Its army stopped short of the Teesta, beyond which at the time lay the Kingdom of Bhutan.

The English East India Company began to show an interest in the Darjeeling hills in the early 19th century. At the time Darjeeling's indigenous population largely consisted of the Lepcha and Limbu peoples. The Company's interference in territorial matters began in the aftermath of its army's victory over the Gurkhas in the Anglo-Nepalese War. Fought between 1814 and 1816, the war concluded with two treaties, the Treaty of Sugauli and the Treaty of Titalia, under which Nepal was required to return the Darjeeling territory to Sikkim.

In 1829, two East India Company officials, Captain George Lloyd and J. W. Grant, en route to resolving a boundary dispute between Nepal and Sikkim, passed a crescent-shaped mountain ridge which they fancied excellent for a sanitorium for the British, or a resort for sheltering and recuperating from the heat of India's plains. Lord William Bentinck, the Governor-General of India, to whom Lloyd communicated his notion, concurred, recommending a small presence of the army in addition for monitoring the frontier.

1835–1857: East India Company rule

Taking the ambition forward, in 1835 the East India Company negotiated the lease of a 40 by 10 kilometres (24 mi × 6 mi) strip of land in a grant deed from the Chogyal. By the end of 1838, sappers from the army were readied for clearing the woods and construction planned in earnest after the monsoon rains. The following year, Archibald Campbell, a physician, was made "superintendent" of Darjeeling, and two public buildings, a hotel and a courthouse were raised. Soon, work had begun on bungalows that conformed to British tastes.

"View of Kinchinjunga from Mr. Hodgson's bungalow at Dorjiling from a sketch by W. Taylor Esq., B. C. S., frontispiece, Joseph Dalton Hooker, Himalayan Journals, London: John Murray, 1854.

The Hill Stations and summer capitals at the end of East India Company rule (1857)

Turning Darjeeling into a resort required many more workers than were available in the scattered local populations. The British attracted workers from the neighbouring kingdoms, chiefly from Nepal but also from Sikkim and Bhutan. They did so by offering regular wages and lodgings, a contrast to the burdensome tax and forced labour regimens common in those kingdoms at the time. Tens of thousands arrived in Darjeeling. Not long after the Darjeeling Hill Cart Road was built in Northern Bengal, connecting Siliguri at the base of the Himalayan foothills to Darjeeling.

In 1833 the East India Company lost its monopoly rights in the tea trade with China. A plan was prepared for growing tea in India. Superintendent Campbell began experimentation in 1840 in Darjeeling which soon proved successful. European planters and sponsors acquired large stretches of the surrounding hillside and converted them to plantations, called tea gardens. Existing tracks and paths in the hills were improved, renamed as roads, and connected to the Hill Cart Road. The botanist Joseph Dalton Hooker, who visited

Darjeeling in the 1840s, noted that carts and pack animals on these roads were bringing fruit and produce from Nepal, wool and salt from Tibet, and labourers looking for work from just about everywhere.

The labour migrations created a burgeoning hostility between the East India Company and the neighbouring Himalayan kingdoms. By 1849 the hostility came to a head. Campbell and Hooker were allegedly kidnapped. Despite the two being released without harm, the British exploited the incident to annex some 1,700 square kilometres (640 sq mi) of territory between the Mechi and the Teesta rivers from Sikkim.

Darjeeling became a municipality in 1850. In the span of 15 years, this Himalayan tract had become a hill station, an official retreat for British administrators in a hilly, temperate, region of India.[6] Hill stations, such as Simla (summer capital of the British Indian Empire), Ooty (summer capital of the Madras Presidency), and Nainital (summer capital of the North-Western Provinces) were all established between 1819 and the 1840s, a period during which the rule of the East India Company had spread to the greater part of the Indian subcontinent and the British felt confident about planning them.[6][29][30] Darjeeling later became the summer capital of the Bengal Presidency.

1858–1947: British Raj[edit]

From 1850 to 1870 the tea industry in Darjeeling grew to 56 tea gardens employing some 8,000 labourers.[31] The tea gardens' security forces kept a close watch on the labourers and used coercion when necessary to maintain intensive production. The labourers' disparate cultural and ethnic backgrounds and the tea gardens' commonly remote locations ensured the absence of worker mobilization.[32] By the turn of the 20th century, 100 tea gardens employed an estimated 64,000 workers,[31] and more than five million pound sterling were invested in Darjeeling tea.[32] The widespread deforestation caused by the tea industry drastically changed the lives of the region's forest dwellers, who were either forced to relocate to other forests or become employed in their former habitat in new colonial occupations.[33] To the mix of the forest dwellers recruited, more labourers joined from across the Himalayas.[27] They communicated with each other in the Nepali language.[27] Later the language, and their customs and traditions would create the distinctive ethnicity of Darjeeling, called Indian Gorkha.[27]

Hill Cart Road, shown in 1865

Darjeeling Railway in a village, 1880

By the last decades of the 19th century, large numbers of administrative officials of the imperial and British Raj provincial governments had begun to travel to hill stations during the summers.[34] Commerce in the stations had grown as had the trade with the plains.[34] A train service to Darjeeling was announced in 1872. By 1878 trains could take summer residents from Calcutta, the capital of the British Indian Empire,[35] to Siliguri at the base of the Darjeeling hills. Thereafter, Tonga horse-carriages were required to cover the last stretch on the Hill Cart Road.[34] Ascending some 1,900-metre (6,300 ft), the journey required stopping at "halting barracks", or stables for feeding or changing the horses.[36] By 1880, railway tracks were being aligned along the Hill Cart Road,[37] and the East Indian Railway Company Jamalpur Locomotive Workshop had begun to build steam locomotives for the route.[34] Miniature steam engines made by Sharp, Stewart and Company of Manchester, were employed for pulling the train on a narrow gauge of two feet.[34] The train service to Darjeeling was opened in July 1881.[34] After cresting at the Ghoom railway station at 2,300-metre (7,500 ft) above sea level, the train made a descent to Darjeeling.[34] Darjeeling was now within a day's travel from Calcutta.[34]

The quadrangle of St Joseph's College, Darjeeling, now St Joseph's School, or North Point, established in 1888

Education became another aspect of Darjeeling's notability by the turn of the 20th century. After the Charter Act of 1833, which allowed unrestricted immigration, British women had begun to arrive in India in significantly more numbers than before.[38] Hill stations became popular summer destinations for women and

children as colonial physicians recommended them for improved maternal and infant health.[39] The British soon began to consider hill stations promising sites for primary and secondary education.[40] St Paul's, an Anglican boys' school in Calcutta, was moved to Darjeeling in 1864.[41] The Catholic Church opened St Joseph's College for boys in Darjeeling in 1888.[41] For girls, the Loreto Convent had already been established during Company rule; the Calcutta Christian Schools Society established the Queen's Hill School in Darjeeling in 1895.[42] Anglo-Indians (of mixed British and Indian ancestry) were discouraged from attending the better-known schools and Indians were almost always prohibited until after World War I.[43]

In 1945, as the British Raj was drawing towards a close, the Nepalese-speaking Indian Gorkha residents of Darjeeling had not been granted rights as British Indian subjects.[44] These residents were at the bottom of the economic ladder, and their physical appearance was now the occasional object of racism by Indians from the plains. The 1941 census had shown that the Gorkha in Darjeeling constituted 86% of the population. They made up 96% of the labour force in the tea gardens.[45][46] Many had been recruited to fight for the British in the Second World War, but the British had been reluctant to displease the governments of Nepal and the Kingdom of Sikkim whose feudal labour regimes many original migrants had sought to escape.[44]

Major General Sir Lee Oliver Fitzmaurice Stack, who was the Governor-General of the Anglo-Egyptian Sudan was born here in 1868 as the son of the British Inspector-General of Police for Bengal.[47]

1947 onwards: independent India[edit]

Tibetan women knitting at the Tibetan Refugee Self Help Centre, Darjeeling, established 1959[48]

After the partition of India in 1947, Darjeeling became a part of the new province of West Bengal in the Dominion of India, and in 1950, of the state of West Bengal in the Republic of India.[h][49] A British exodus from Darjeeling quickly followed.[32] Their cottages were quickly purchased by the Indian upper classes from the plains who enrolled their children in the town's many schools. These actions created social and economic tensions with the Indian Gorkha population and further marginalised the latter.[32] Their lack of economic development, caused by a hierarchal economic system set up by the British, continued in some respects in the immediate decades after 1947.[50] The Indian nationalism that emerged seemed to highlight the unclear position of the Indian Nepalis in the newly independent nation.[50] The division of India into states comprising the regions of its different spoken languages had allowed a relatively large proportion of the educated speakers of these languages to find employment in the government-owned enterprises. In the instance of the Gorkhas, the federal and state governments refused to accept their requests for their own Nepali-speaking state in the northern regions of Bengal.[50] Eventually, the demands for autonomy were downsized to calls for the recognition of the Nepali language for official state business in Nepali-speaking regions of Bengal.[51] This was accepted in the West Bengal Official Language Act, 1961.[52]

Darjeeling had a sizeable community of Sherpas, an ethnic group, originally from eastern Tibet whose ancestors had moved to some villages in Nepal below Mount Everest. Sherpas had come to Darjeeling in the second half of the 19th century as seasonal labourers looking for work in road-building.[53] As mountaineering in the Himalayas had gained popularity and Nepal was closed to foreigners, many Western mountaineers and enthusiasts came to Darjeeling to plan their Himalayan expeditions.[53] The Sherpas stood out for their exceptional physical ability as porters. These physical abilities and their fitness elicited visits to Darjeeling by European biochemists in the early 1900s.[54] Among the most famous Sherpas who moved to Darjeeling were Ang Tharkay[55] and Tenzing Norgay.[56] On 29 May 1953, Tenzing and Edmund Hillary became the first two humans to stand atop Mount Everest, vaulting both to instant stardom worldwide. The prime minister of India, Jawaharlal Nehru, took Tenzing under his wing.[57] Tenzing became the first field director of the Himalayan Mountaineering Institute after it was established in Darjeeling in November 1954[58]

Women supporting Gorkhaland marching with torchlights, Darjeeling, 2013

A trickle of immigrants from Tibet proper into Darjeeling had begun in the second half of the 19th century.[59] Wealthy Tibetan aristocrats had sent their children to Darjeeling's schools, and some went on to settle in the Darjeeling area.[59] After the annexation of Tibet by the People's Republic of China in 1950–1951, many Tibetans emigrated to India, with some settling in the Darjeeling area, including the 14th Dalai Lama's older brother Gyalo Thondup.[60] After the 1959 Tibetan uprising, the Dalai Lama himself fled to exile in India, and tens of thousands of Tibetan refugees poured in after him, with many finding refuge in the Darjeeling–Kalimpong area.[61] A Tibetan Refugee Self Help Centre was established in Darjeeling in 1959.[48]

In May 1975, the Kingdom of Sikkim to the north of Darjeeling was absorbed into the Republic of India through a referendum. A month thereafter, Sikkim, in which nearly two-thirds of the populace spoke Nepali, was made a state of India.[62] It was not lost on the Gorkhas of the Darjeeling region that there were many more speakers of Nepali in the Gorkha districts of northern Bengal, and their calls for autonomy had borne no fruit.[62] The Government of India, moreover, had been reluctant to recognise Nepali as an official language in the Constitution of India.[62] Slights delivered by senior Indian leadership around this issue—Morarji Desai, a former prime minister calling Nepali a foreign language, and Vallabhbhai Patel, a former deputy prime minister, describing the Gorkhas as disloyal and entertaining "Mongoloid prejudices"—were all remembered.[63] A decade later, during Rajiv Gandhi's prime ministership, small regions in Assam to the east of Darjeeling, which had been riven by violent ethnic separatism, were granted statehood.[63] All these factors played into creating a militant mood among the Gorkhas for statehood and brought the Gorkhaland movement to the forefront.[63] It led to the founding of the Gorkha National Liberation Front (GNLF) under the leadership of Subhas Ghising.[63] Agitation for a separate state in Darjeeling included violent protests,[64] and fighting between the disparate militant groups.[65] The agitation ceased after an agreement was reached between the government and the Gorkha National Liberation Front (GNLF). It resulted in the establishment of an elected body in 1988, the Darjeeling Gorkha Hill Council (DGHC), which received some autonomy to govern the district.[64]

In 1992, the Nepali language was recognized officially at the federal level in India by inclusion in the Indian Constitution.[66] Though Darjeeling became peaceful, the issue of a separate state lingered.[67] Agitation for a new state again erupted in 2008, led by the Gorkha Janmukti Morcha (GJM).[68] In July 2011, a pact was signed between GJM, the state and national governments which included an elected Gorkhaland Territorial Administration (GTA), with limited autonomy within the state of West Bengal. It evoked little enthusiasm on the streets.[69] In 2013, fresh agitation broke out in Darjeeling after Telangana, a region in southern India was granted statehood.[69] Four years later, more agitation caused several months of violence, food shortages, and strikes in Darjeeling but resulted in the Morcha splitting into factions.[69] In 2017, Mamata Banerjee, the West Bengal chief minister, appointed a moderate Morcha politician to leadership in a reconstituted GTA, marginalizing and eventually ousting the founder of the movement, Bimal Gurung.[70]

Geography and geology[edit]

Darjeeling Hills showing Darjeeling, Kalimpong, and Kurseong, the headquarters of the three hill subdivisions

Map 1: Darjeeling municipality, showing the ridges on which the town was settled

The Darjeeling hills (formally Darjeeling Himalayan hill region) comprise parts of Darjeeling district and all of Kalimpong district; specifically, they contain: Darjeeling Sadar subdivision, Kalimpong subdivision and Kurseong subdivision.[71] Darjeeling town lies in the Sadar subdivision. It is located at an average elevation of 2,045 m (6,709 ft)[10] on the Darjeeling–Jalapahar range which runs south to north starting at Ghum (Map 1). The range is Y-shaped with its base resting at Katapahar and Jalapahar and two arms diverging north of the Observatory Hill. The north-eastern arm dips swiftly and ends in the Lebong spur, while the north-western arm slopes gently, passing through North Point, and ends in the valley near the Tukver Tea

Estate.[72] Kangchenjunga, the world's third-highest peak at 8,598 m (28,209 ft), which lies 74.4 kilometres (46.2 mi) to the north, is the most prominent mountain visible.[15][16]

The Darjeeling hills have been formed by accumulations of folds, faults and tangential thrusts caused by a compression in the north–south direction as the Indian tectonic plate has subducted under the Eurasian plate.[73] Their physical composition varies from unaltered sedimentary rocks in the southern regions to several types of metamorphic rock and some intrusive rocks in the middle and northern, suggesting upward intrusion of the Earth's mantle.[73] The collective process has sheared, folded, crushed together, fractured and jointed the rocks, reducing their strength and making them vulnerable to water percolating down their crevices and causing pore water pressure to build up.[73] Phyllites and schists are found in the hills around Kalimpong, which lies to the east, and gneiss predominates the western regions in which Darjeeling lies.[73]

Landslide, Darjeeling Siliguri Road, 1993

The Teesta, flowing south, meets the Rangeet on its right

Two studies (1990 and 2019) recorded that landslides were a serious concern in the area.[74] Most are triggered by excessive rainfall, earthquakes, and quick erosion caused by torrents.[74] They are accelerated by extensive deforestation, defective drainage, poorly built revetments and the presence of steep slopes that have been undercut to make shelves for paths, roads, and houses.[74][75] Debris flows along existing gullies can sometimes bring along large boulders and cause damage to roads; in 1968, during a catastrophic rainstorm, the 56 kilometres (35 mi) Darjeeling–Siliguri road was cut in 92 places by debris flows.[76][77]

Teesta, the major river of the Darjeeling region, rises at 6,300 metres (20,700 ft) from a glacier in Sikkim, and flows south, at first meeting the Rangpo river and then the Rangeet before exiting the hills and eventually joining the Brahmaputra river in Bangladesh.[73][78] The flow rate of the Teesta is 1,500 cubic metres (53,000 cu ft) per second during the summer monsoon;[78] it had had major floods in 1950 and 1968.[73]

The continual tectonic activity of Darjeeling's ancient past can be inferred from the surrounding landscape in such features as terraces that dip in their middle as a result of earlier horizontal pressure.[73] Eroded fault scarps, or steps, observed in the landscape were caused by vertical slips in the faults below.[73] Alluvial fans at different heights signify a succession of previous rivers that dried up and spread their silt outwards as their beds were raised by the uplift.[73] According to the Bureau of Indian Standards, Darjeeling town falls under seismic zone-IV (on a scale of I to V, in order of increasing proneness to earthquakes).[79] A study published in 2018 found that residents of Darjeeling's outer areas, which are lower-income and lower-lying, worried about catastrophic loss during an earthquake.[80] The April 2015 Nepal earthquake was felt in Darjeeling, and these residents feared that in the instance of a major earthquake, the unplanned upper-level construction could very well give way and tumble down on them.[80]

Climate and environment[edit]

Climate[edit]

Darjeeling has a temperate subtropical highland climate (Köppen climate classification: Cwb).[81] The average annual precipitation in Darjeeling is approximately 3,100 mm (120 in).[i] Eighty percent of the annual rainfall takes place between the months of June and September, due to the monsoon of South Asia.[83] The "June–May ratio," or the percentage by which the rain increases from May to June, is 2.6 or 260%.[83] In contrast, just 3% of the annual rainfall takes place between December and March.[83] Darjeeling's altitude—which is greater than some other regions of the Eastern Himalayas at the same latitude (27° N), such as the Assam hills—and its rarified air causes its UV radiation levels to be correspondingly higher. Its mean monthly UV

radiance is approximately 4500 microwatts per square cm per day during the peak months of May, June, and July. It is 50% higher than the Assam hills to the east, whose altitude is 170 metres (560 ft).[84]

hideClimate data for Darjeeling (1981–2010, extremes 1901–2012)													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	19.0 (66.2)	19.2 (66.6)	24.0 (75.2)	27.0 (80.6)	25.7 (78.3)	27.7 (81.9)	28.0 (82.4)	28.5 (83.3)	27.5 (81.5)	26.0 (78.8)	24.5 (76.1)	20.0 (68.0)	28.5 (83.3)
Mean daily maximum °C (°F)	10.7 (51.3)	12.4 (54.3)	15.6 (60.1)	18.5 (65.3)	19.3 (66.7)	19.8 (67.6)	19.6 (67.3)	20.0 (68.0)	19.8 (67.6)	19.5 (67.1)	17.1 (62.8)	14.0 (57.2)	17.2 (63.0)
Daily mean °C (°F)	6.1 (43.0)	7.7 (45.9)	10.6 (51.1)	13.7 (56.7)	14.9 (58.8)	16.3 (61.3)	16.5 (61.7)	16.7 (62.1)	16.1 (61.0)	15.0 (59.0)	11.7 (53.1)	8.9 (48.0)	12.9 (55.1)
Mean daily minimum °C (°F)	1.5 (34.7)	2.9 (37.2)	5.7 (42.3)	8.8 (47.8)	10.6 (51.1)	12.8 (55.0)	13.4 (56.1)	13.4 (56.1)	12.4 (54.3)	10.5 (50.9)	6.3 (43.3)	3.8 (38.8)	8.5 (47.3)
Record low °C (°F)	−7.2 (19.0)	−6.4 (20.5)	−4.8 (23.4)	0.0 (32.0)	1.4 (34.5)	6.6 (43.9)	3.9 (39.0)	8.0 (46.4)	6.2 (43.2)	3.2 (37.8)	−4.4 (24.1)	−4.6 (23.7)	−7.2 (19.0)
Average rainfall mm (inches)	13.5 (0.53)	14.0 (0.55)	30.8 (1.21)	76.9 (3.03)	137.9 (5.43)	466.0 (18.35)	656.7 (25.85)	528.2 (20.80)	379.7 (14.95)	59.1 (2.33)	14.4 (0.57)	2.9 (0.11)	2,380 (93.70)
Average rainy days	1.1	1.5	2.8	6.8	10.5	18.8	22.9	21.7	14.9	2.9	0.6	0.7	105.3
Average relative humidity (%) (at 17:30 IST)	81	78	75	78	88	93	94	92	90	84	75	74	84
Mean daily sunshine hours	5.4	5.0	4.7	4.9	4.9	2.4	2.5	3.3	3.2	5.4	6.3	6.1	4.5
Average ultraviolet index	5	6	9	11	13	15	15	14	12	9	6	4	10
Source 1: India Meteorological Department[85][86] UV Index[87]													
Source 2: Deutscher Wetterdienst (sun 1891–1990)[88]													

Environment[edit]

Annual average, daily max. and min. temperature, Darjeeling, 1890 to 2010

Forests and pastures vs. agricultural land in and around Darjeeling, 1900 to 2000

From the beginning of the twentieth century, Darjeeling's average temperature has increased by 4 °C, which is twice the world's average,[89] and the annual averages of its daily maximum and minimum temperatures have increased by greater margins.[89] During the same period, relative humidity has decreased by 7%,[89] and rainfall by 300 millimetres (0.98 ft) annually.[89] For its water the Darjeeling municipality and the surrounding hills depend to a large extent on perennial or seasonal jhora springs (see Map 1), especially during the pre-monsoon months from February to May.[90] The Senchal Lakes, two artificial reservoirs built in 1910 and 1932 in a forested high-altitude area to the southeast (see Map 2),[91] which are filled with water from a surrounding catchment area during the monsoon months, have a greatly reduced supply, as of 2016.[92] Darjeeling's explosive population growth in the period 1961–2011, and extensive deforestation even within the protected catchment area for the lakes, have caused many springs to have vastly reduced yields during the dry months from February to May. Of the 26 springs that had once fed the lakes, 12 have been affected.[90] Forests and pastures have shrunk from 78% in 1900 to 38% in 2000, and cultivated land, which contributes to soil erosion, has correspondingly increased during the same time from 20% to 44%.[93] By 2006, land records in Darjeeling showed that foodgrain-producing farmland had decreased proportionally, caused by accelerated levels of urbanisation and by subsistence farming giving way to commercial cropping, especially of tea.[94] In 2016, acid rain, which can be caused by air pollution and can in turn damage forests, was observed in the Eastern Himalayas; the pH value in Darjeeling was measured at 4.2.[95] A 2022 article quoting another 2016 study reported a pH value of 5.0±0.825 in the rainwater.[96]

According to a 2014 study, the influx of the excess population in the tea plantations around Darjeeling into "marginal areas of town—on backfill, slopes, septic tanks, and jhorās (springs)—has strapped the town's colonial-era infrastructure. Despite building codes that prohibit buildings taller than three stories, the market for cheap housing in Darjeeling inspires developers to go skyward, often as many as eight stories. Hastily built apartment houses ... are falling into the jhorās and sliding down the mountainside."[97]

Flora and fauna[edit]

The 16-hectare (40-acre) Lloyd Botanic Garden, founded in 1878

A red panda (Ailurus fulgens) in the Padmaja Naidu Himalayan Zoo

Darjeeling is a part of the Eastern Himalayan zoo-geographic zone.[98] Flora around Darjeeling comprises sal, oak, semi-evergreen, temperate and alpine forests.[99] Dense evergreen forests of sal and oak lie around the town, where a wide variety of rare orchids are found. The Lloyd's Botanical Garden preserves common and rare species of plants, while the Padmaja Naidu Himalayan Zoological Park specialises in conserving and breeding endangered Himalayan species.[100] The town of Darjeeling and surrounding region face deforestation due to increasing demand for wood fuel and timber, as well as air pollution from increasing vehicular traffic.[101]

Forests and wildlife in the district are managed and protected by the Divisional Forest Officer of the Territorial and Wildlife wing of the West Bengal Forest Department.[98] The fauna found in Darjeeling includes several species of ducks, teals, plovers and gulls that pass Darjeeling while migrating to and from Tibet.[102] Small mammals found in the region include civets (such as small and large Indian civets, masked palm civet, spotted linsang and binturong), mongooses (such as Indian grey mongoose and crab-eating mongoose)

and badgers (such as Burmese ferret-badger and greater hog badger).[103] Other carnivores found in the area include Himalayan black bear and red panda.[104] A conservation centre for red pandas opened at Darjeeling Zoo in 2014, building on a prior captive breeding program; this Species Survival Plan had about 25 red pandas by 2016.[105][106] The Himalayan newt Tylotriton verrucosus, one of two salamander species occurring in India, is found in wetlands in the vicinity.[107] The Himalayan relict dragonfly Epiophlebia laidlawi, one of just four species in the family Epiophlebiidae, was first described from the region.[108]

Demographics[edit]

Main article: Demographics of Darjeeling

The Indian decennial census of 2011 (the last for which there is processed data)[11] recorded the population of the Darjeeling municipality to be 118,805 individuals. Of these, 59,618 were females and 59,187 were males, yielding a gender ratio of 1007 females for every 1000 males.[4] The population density of the municipality was 15,990 individuals per km2 (41,000 per square mile).[4] The literacy rate was 93.9%—the female literacy rate was 91.3% and the male was 96.4%.[4] Among groups whose historical disadvantages have been recognized by the Constitution of India and designated for amelioration in subsequent commissions and programmes, the scheduled tribes of Darjeeling town constituted approximately 22.4% of the population, and the scheduled castes 7.7%.[4] The work participation rate was 34.4%.[4] The number of people living in slums was 25,026 individuals (which was 21.1% of the population).[4]

Figure 1: Darjeeling 10-yearly census data from 1881 to 2011[j]

Males with Dhaka topi shopping, Darjeeling, 2008

Women in traditional dress, 2014

Darjeeling began to be an "administrative" town in independent India after being made the headquarters of Darjeeling district in 1947.[12] During the period 1961–2011, the town's population increased at an accelerated rate (Figure 1).[12] An "aspirational middle class" arose, comprising families of professionals in the administration, and retail and service industries.[12]

"Indian Gorkha" is a term that denotes the Nepali-speaking people of India, as distinct from the Nepali-speaking inhabitants of Nepal.[110] As of 2016, the population of Darjeeling was predominantly Indian Gorkha. There were also smaller numbers of Lepchas, Bhutias, Tibetans, Bengalis, Marwaris and Biharis.[111] In the 2011 census,[11] between them they practised Hinduism (66.5%), Buddhism (23.9%), Christianity (5.1%) and Islam (3.9%).[4] The Lepchas were considered the main indigenous community of the region; their original religion was a form of animism.[111] The Nepali community was a complex mix of numerous castes and ethnic groups, with many roots in tribal and animist traditions.[111] The accelerated growth of the town's population and the tightly packed living conditions in which different ethnicities mixed created syncretic cultures in Darjeeling which evolved away from their historical roots.[111]

According to a 2014 study, although the demand for labour in the tea estates surrounding Darjeeling had stayed roughly constant since 1910, the population of Nepali-speaking workers and their families in the tea estates had grown throughout.[97] As the excess population migrated up to Darjeeling in search of jobs and housing, their cause was championed by the Gorkhaland movement in the 1980s; this had the effect of making a considerable number of non-Gorkha families leave their homes in Darjeeling.[97]

Seasonal migration out of Darjeeling has long been a local feature, especially among the lower-income groups; substantial migration among middle-class youth is a 21st-century occurrence.[112] Many educated young people in Darjeeling have begun to migrate out because the growth of jobs in the area has not kept pace with

the numbers of people with tertiary degrees.[112] For both groups of migrants, favoured destinations fall into three groups:

neighbouring Gangtok in Sikkim, and Siliguri in North Bengal at the base of the Darjeeling hills;

the large bustling cities of Delhi, Kolkata, Bangalore, and Mumbai; and

Kathmandu, the capital of Nepal, where there is a linguistic culture in which they feel comfortable.[113] Those looking for immediate employment commonly work in call centres, beauty parlours, and dumpling stands.[113]

Those looking for eventual employment in professional careers pursue higher education.[113] Both groups have experienced racism and economic and social discrimination in India's big cities, caused by their distinctive, more East Asian, physical appearance.[114]

Governance[edit]

A schematic map of Darjeeling Municipality wardsDarjeeling Municipality building

The Darjeeling Municipality is one of the oldest in India, established on 1 July 1850, with ten wards.[9] It was governed by commissioners who were nominated until 1916, then elected until 1932, and nominated again until 1947.[9] After India's independence that year, the commissioners continued to be appointed until 1964, when the first election was held. It was overturned by a court injunction; further elections and continual interference by West Bengal's state government became the prevalent state of affairs.[9] As of 2021, the municipality is governed by a board of councillors headed by a chairperson and a vice chairperson. The number of wards in the municipality increased to 32 in 1988.[9] Wards represent electoral subdivisions; in 2017, 32 councillors were elected, one from each ward.[115] The wards were reorganized and bifurcated in 2011.[9]

The area of the town (municipality) was reduced from 10.75 square kilometres (4.15 sq mi) to 7.43 square kilometres (2.87 sq mi) in 2011 after bifurcation.[9] By 2016, the municipality was surrounded by tea gardens and forestry department land and had minimal room for expansion.[111]

In 2021 the town had approximately 22,000 households and 350 hotels and restaurants.[9] That same year the following statistics were collected: the municipality considered wards 15, 19, 20, 21, 22, 24, and 25 to be the core areas; most businesses, hotels, restaurants, and educational institutions were located in these wards and they were better connected to municipal electricity and water;[116] wards 10, 15, 20 and areas of ward 30 were the most developed, whereas wards 1, 2, 13, 14, 27, 31, and 32 were the most deprived;[117] and the latter group of wards contained 37 slums in which 23% of the population of Darjeeling resided.[118]

In 1988, the Gorkha-dominated hill areas of Darjeeling district were given an autonomous form of governance under the Darjeeling Gorkha Hill Council (DGHC).[119] In 2012, the DGHC was replaced by a similar body called the Gorkhaland Territorial Administration (GTA).[119] The elected members of GTA manage certain affairs of the hills, including education, industry and land revenue; they cannot legislate or levy taxes.[120] The Gorkha Janmukti Morcha (GJM) held power in the municipality until March 2022,[115] when it was defeated by the newly-formed Hamro Party.[121]

Darjeeling town is within the Darjeeling Assembly constituency that elects one member of West Bengal Legislative Assembly in state legislative elections every five years.[122] The town is part of the Darjeeling parliamentary constituency that elects one member for the Lok Sabha, the lower house of India's bicameral Parliament.[123]

Economy[edit]

A 2017 study described the Darjeeling area as entirely dependent on the production of tea and the inflow of tourists to create employment.[124]

Tea[edit]

Tea garden workers, some waiting to turn in their pickings; others have done so

Further information: Darjeeling tea

Darjeeling tea is produced on plantations in which a few leaves[k] on each tea bush are plucked by women. During the tea bush's dormancy period in the short winter season, it is pruned by the women to stimulate growth the following season. Unlike China, where the tea bush grew into a tree, the early British planters devised these means to monocrop tea in tightly packed hedges on vast estates. In the plantation factories, men operate machines to ferment, dry, and package the normally short-lived green tea leaves.[125]

After India's independence in 1947, many of Darjeeling's governmental and economic arrangements remained unchanged. When British planters auctioned off their estates, they were bought by Indians from the plains or corporations from elsewhere in India.[126] Darjeeling's labour force had long consisted of workers recruited from Nepal. Mid-19th-century British ethnologists had commended Nepalese for their step farming and other forms of settled agriculture in the Himalayan foothills. They were contrasted with Darjeeling's native population of the Lepcha at the time of British annexation,[127] who practised "shifting agriculture".[128] Planters believed that if allotted a house and a yard in which to grow vegetables and fruit, the Nepalis would be more inclined to stay.[128] The arrangement, which lasted during the colonial period, was formalized in independent India's Plantations Labour Act, 1951. As of 2017, workers maintain their two or three-bedroom homes which they do not own, become attached to their upkeep, and eventually hope to retire in them when an adult child who also works on the plantation inherits the house.[128]

In 2017, the average basic daily wage (that is, without employee benefits) of a Darjeeling tea garden worker was Rupees 144.60 (US$2.22) per day.[129] With benefits, it was Rupees 277.10 (US$4.26) per day.[l][129][129] Comparatively, Darjeeling's tea estate workers were paid less in 2017 than tea estate workers in several southern Indian states.[m] The auction price of Darjeeling tea for 2017 was comparatively higher.[n]

A 2017 study found that some 60% of the plantation labour jobs in the Darjeeling area were held by women.[124] The protection and economic development of the tea labour force was one of the motivations for India's enactment of the Geographical Indications of Goods (Registration and Protection) Act, 1999. According to a 2017 study, "India has pursued the recognition of iconic brands, not only to create market share but also to recognise the value of the GI system to encourage development in poor, rural regions with high unemployment rates. This is consistent with the broad WTO objective to encourage trade liberalisation in developing countries to reduce poverty."[124] Darjeeling tea was given GI recognition in Europe in spite of some European Union member nations objecting to the use of the indication for blended tea.[131] It was recognized in US Geographical Indication mark, "DARJEELING, Registration No. 1,632,726."[132]

Area of cultivation of Darjeeling tea in hectares (acres) from 1951 to 2014

Tea is produced in the Darjeeling hills and farther below in two different forms. Orthodox tea looks like the twisted and dried version of the green leaves on the bushes.[o] The Darjeeling sub-division of the Darjeeling hills had 46 tea estates in 2017, producing mostly orthodox tea. This is commonly exported and is some of the

world's most expensive.[71][133] In the crush, tear, curl, or CTC version, which is commonly grown in the Kurseong sub-division (with 29 tea estates), and the Kalimpong (with 6),[71] the tea leaves are mechanically manipulated, fired, and turned into tiny hard pellets that look like instant coffee.[134] Cheaply available, and boiled with milk and sugar, when CTC tea was introduced into the Indian market in the early 1950s, it turned India into a nation of tea drinkers.[135]

The area of cultivation of Darjeeling tea increased from 16,569 hectares (in 1951) to a high of 20,065 (in 1990) and dropped to 17,820 (in 2014) according to a 2021 study.[136] There were 99 tea estates in 1961; these increased until 1990 (when 102 were recorded) but dropped to 83 by 1995 and to 81 by 2014.[137] The 20% drop from 1990 to 1995 was attributed in the study to India's economic liberalisation which came into force in the very early 1990s.[137] A 2017 study similarly reported the Indian tea industry to have been adversely affected by price drops after India's economic liberalisation in the 1990s.[112] Darjeeling tea garden owners invested their surpluses in more profitable industries elsewhere,[112] causing a decline in productivity in the local tea industry.[112] The Tea Board of India estimated 7,010,000 kilograms (15,450,000 lb) of Darjeeling tea was produced in 2021; this constitutes about 0.5% of total 1,343,060,000 kilograms (2.96094×109 lb) produced in India.[138]

Tourism[edit]

Darjeeling has two peak tourism seasons, September to November and April to May.[139] A 2014 study suggested that domestic tourism is the foundation of the town's vacation business.[140] The Chowrasta is a popular shopping and gathering area where a tourist might get their picture taken dressed in colourful and rustic local clothes.[140] The tea plantations below are particularly visited by foreign tourists.[140] Old bungalows in some plantations have been converted to deluxe lodgings in which rooms rent out dearly by any global standard.[140] Some tourists hold dear the escape to a peaceful, unspoilt, and picturesque landscape evoked in Satyajit Ray's 1962-film Kanchenjungha.[140]

A terraced rock garden in Darjeeling

The Japanese Peace Pagoda, Darjeeling during rain

Darjeeling had become an important tourist destination as early as 1860.[5] Since India's economic liberalisation in 1991, tourism in Darjeeling has become cheaper, and Darjeeling, once considered a luxury destination, has become accessible to mass tourism.[112] A 2016 study recorded the tourist influx into Darjeeling town between 2009 and 2014 as ranging from a low of 243,255 individuals in the 2010–2011 season to a high of 488,675 in 2012–2013; the large majority were domestic tourists, with foreign tourists never comprising more than 35,000 annual visitors.[141]

Darjeeling can be reached by the narrow-gauge Darjeeling Himalayan Railway (DHR) which travels a route 88 km (55 mi) long from Siliguri.[37] Pulled by steam locomotives, it moves at speeds of between 20 kilometres (12 mi) and 25 kilometres (16 mi) per hour.[37] Although the service was begun in the 19th century to move humans and freight efficiently, its primary clients today are tourists who are availing themselves of the opportunity to experience the mobilities of travel of a bygone era.[142] After an international and national campaign for its support, the railway was declared a World Heritage site by UNESCO in December 1999 at the 23rd Session of the UNESCO World Heritage Committee held in Morocco.[143][144] In Notes on Defining the Darjeeling Himalayan Railway: World Heritage Property, Unpublished manuscript. The DHR Archive, Kurseong, 2005, K. Weise had written:

The railway begins on the plains of West Bengal and soon begins climbing through a remnant of lowland jungle, including stands of teak. As the railway climbs, so the flora changes and its upper sections are dominated by enormous Himalayan pines, which in misty weather give a surreal quality to the landscape. It frequently hugs the ages of hillsides with drops, often of thousands of feet, to the plains and valleys below.

Towering over the entire scene is the perennially snow-covered bulk of Kanchenjungha. ... From Kurseong the railway offers frequent views of this stupendous mountain, which by Ghoom dominates the entire landscape.[145]

In a 1999 study, it was thought the tourist influx into Darjeeling had been adversely affected by the political instability in the region, including agitations in the 1980s.[146] According to a 2018 study, tourism in Darjeeling is limited to a small area of the town so its effect on local employment is inadequate for alleviating Darjeeling's high unemployment rate.[147] According to the author, "The majority of the employees and almost all of the top ranking officers in West Bengal Tourism Development Corporation are Bengalis; locals generally get employed as photographers, drivers, and guides."[147]

Utilities[edit]

Map 2: A schematic map showing the Senchal Lakes in relation to Darjeeling

The chief catchment area for Darjeeling municipality's water is the Senchal Wildlife Sanctuary, located approximately 11 kilometres (6.8 mi) to the southeast, covering an area of 37.97 square kilometres (14.66 sq mi) and lying between 1,500 metres (4,900 ft) and 2,600 metres (8,500 ft) in altitude.[91] Natural springs in the sanctuary, not all perennial, are the main source of the water supply.[148] The steep slopes of the surrounding ridges (at inclines of between 20° and 48°) can lead to high surface run-off, subsequent absorption, and collection of water in partially confined spaces.[149] Upon reaching a critical volume, this groundwater can surge out as seasonal springs.[149] Water collected from 26 perennial and seasonal springs is routed through stone conduits to the Senchal Lakes (Map 2) constructed in 1910 and 1932. From Senchal the water is piped to the town after purification at a filtration plant in Jorebungalow.[91] There are a combined 35 kilometres (22 mi) of pipes transporting water from Senchal to Darjeeling, and a further 83 kilometres (52 mi) in the water distribution system within Darjeeling.[150] In the months before the monsoon during which water in the Senchal lakes is reduced, it is augmented by pumping water electrically from another reservoir located near Khong Khola.[91]

A 2012 report of the Darjeeling Municipality Waterworks Department stated that from the 1930s little or no maintenance had been undertaken on the water pipeline from Senchal.[150] Engineers in the department suggested that there might be up to 35% transmission loss, and more within Darjeeling.[150] Once in Darjeeling, the water is distributed along the colonial pattern, first serving more expensive and sought-after uphill neighbourhoods and then the low-income downhill ones, which have more restricted access to the supply.[150] The system was designed to serve a population of up to 20,000 individuals. Between 1911 and 2011, there had been a six-fold increase in the population of the municipality, not including the large number of transients such as students, migrant workers, and tourists (see Figure 1).[150] Increasing demand has led to a worsening shortfall in the water supply.[151] As a result, many residents have to purchase water from private vendors who either supply it in water tankers or in hand-pushed carts; they sometimes collect the water from the local jhora or springs. (see Map 1).[152] Larger private businesses are involved in supplying households but do so at a substantially higher cost.[152]

Senchal Wildlife Sanctuary, during a downpour, July 2011

A water tanker delivering water in Darjeeling, May 2009

As of 2020, every day 30 metric tonnes of solid waste are generated in Darjeeling, and during the peak tourist seasons, the amount goes up to 50 metric tonnes.[153] Bulk waste, which is chiefly produced in residential areas, markets and hotels, is deposited in common dumping areas from which it is taken in tractor-trailers to dumping grounds.[153] Open dumping, which is the disposal of waste in sites not designed for waste management, is commonly practiced, and has created economic and social tensions in Darjeeling.[153]

In 1897 Darjeeling became the first town in India to be supplied by hydroelectricity, which was generated at the nearby Sidrapong Hydel Power Station; it was primarily for use in street lighting and private houses.[p][155] Today, electricity is supplied by the West Bengal State Electricity Board from other locations.[156]

Transport[edit]

Further information: Transport in Darjeeling

Walking and taxis are the two main forms of getting around.

Golf cart-style battery-powered taxi, 2015

Darjeeling has two major arterial roads: Hill Cart Road—which is a continuation of National Highway 110 connecting Siliguri at the base of the Darjeeling hills to Darjeeling—and Lebong Cart Road (see Map 1).[157] The average width of Darjeeling's roads in 2018 was between 6 metres (20 ft) and 7 metres (23 ft).[158] According to a Darjeeling Municipality report of 2008, a little over half (55%) of Darjeeling's roads were both metalled (paved with asphalt, or bitumen) and motorable; the rest were too narrow to admit traffic whether concrete roads or unpaved.[157] There were three parking areas that were not located on the street and 13 on-street. Illegal parking along narrow roads has created congestion for both pedestrians and wheeled transport.[158]

As of 2018, Darjeeling had no public transport system of buses.[158] Less than one in 20 residents owned any form of vehicular transport, two-wheeled or four.[158] For both locals and tourists motorized travel was limited to six- or eight-seater paratransit taxis that have no set routes or timetables. Passengers embark and disembark in the central shopping district of the town, making the area both congested and polluted.[158] In 2015, in an attempt to tackle the pollution, the Gorkhaland Territorial Administration (GTA), which governs the district, introduced three battery-powered street-legal golf-cart-taxis on a trial basis. The taxis had cost approximately Rupees 36 lakh (or $14,670 in the 2015 exchange rate) per vehicle.[159] Although the vehicles were factory-designed for a battery life of 60 kilometres (37 mi) before requiring a recharge, their batteries were found to run out in 5 kilometres (3.1 mi). Chalking up the disparity to the challenges of Darjeeling's steep streets, and the lack of mechanics to correct the malfunction, the administration withdrew the vehicles from the streets in 2016.[159]

Darjeeling can be reached by motorized vehicles on National Highway 110, from Siliguri, 77 km (48 mi) away.[160] Darjeeling has road connections with Bagdogra, Gangtok and Kathmandu and the neighbouring towns of Kurseong and Kalimpong.[160] However, road and railway communications often get disrupted in the monsoons because of landslides.[161][162] The nearest airport is Bagdogra Airport, located 90 km (56 mi) from Darjeeling.[160]

Culture[edit]

Further information: Culture of Darjeeling

Prayer flags festoon the Mahakal Temple, built 1782

St. Andrew's Church, Darjeeling (founded 1843) during a rare snowfall

The culture of Darjeeling is diverse and includes a variety of indigenous practices and festivals; it has a regional distinctness from the rest of India.[31] Mixing and intermarriage between ethnic groups have led to hybrid cultural forms and practices.[31]

Major festivals are Dashain (Vijayadashami), Tihar (Diwali), Holi, Lakshmi Puja,[163] Maghe Sankranti,[164] Losar, Buddha Jayanti, and Christmas. Tibetan Buddhism is followed by some ethnic groups such as Tibetans, Lepchas, Bhutias, Sherpas, Yolmos, Gurungs, and Tamangs; their common festivals are the Tibetan new year festival Losar,[165] Saga Dawa and Tendong Lho Rumfaat.[166][167] The Kirati ethnic group Rais, Limbus, Sunuwars and Yakkhas celebrate Udhauli and Ubhauli as their main festival.[168]

Popular Hindu deities are Durga, Kali, and Shiva; other deities with both Hindu and Buddhist influences, such as Manjushri and Macchindranāth, are popular among Newar people, and Gorakhnath, and worshipped by Gorkhas.[165] The Mahakal Temple on Observatory Hill is a pilgrimage site for Hindu and Buddhists.[169] Followers of Tibetan Buddhism, or Lamaism, have established several gompa or monasteries.[165] Ghoom Monastery (8 km or 5 miles from the town), Bhutia Busty monastery, and Mag-Dhog Yolmowa preserve ancient Buddhist scripts. A Peace Pagoda was built in 1992 by the Japanese Buddhist organisation Nipponzan Myohoji.[170] In the Tibetan Refugee Self Help Centre, Tibetan crafts like carpets, wood and leather work are displayed.

The Darjeeling Initiative, a civil society movement, holds the ten-day Darjeeling Carnival; it celebrates Darjeeling Hill's musical and cultural heritage each year usually in November.[171] A literary culture has matured in the Nepali-speaking population of the Darjeeling region; in 2013, Asit Rai, a resident and Nepali-language writer, was elected to the Sahitya Akademi Fellowship, the highest honour of India's National Academy of Letters.[172]

According to a 2017 study, Western music has long been popular in Darjeeling.[173] In the "lively hippie music scene" in Kathmandu in the late 1960s, some of the earliest "Western pop performers" were from Darjeeling.[173] The earliest Nepali-led hotel bands were from Darjeeling and many among them had played in hotels in Calcutta before.[173] A 2004 study suggested that one possible reason for such leadership might have been that many Nepalis in Darjeeling had become Christians and were no longer bound by Hindu caste prejudices in which "musical performance is associated with low caste standing".[173] By the early 1990s, a common middle-class western popular music culture was much in evidence among the young people of Kathmandu, Nepal and the Nepalese-speaking youth in Darjeeling.[q][174]

Football is the most popular sport in Darjeeling; the annual Gold Cup tournament was once a favourite event in the hills. An improvised form of ball made of rubber bands is often used for playing in the steep streets, and is known as Chungi.[175][176]

Colonial architecture is exemplified in Darjeeling by cottages, Gothic churches,[177] Planters' Club,[178] the Raj Bhawan and various educational institutions.[179][180]

Food[edit]

Momos in a roadside stall

Fermented Tongba

The traditional dietary culture of the town of Darjeeling has much in common with that of the Darjeeling hills, though urbanisation has affected the food habits throughout the region. A mug of tea with milk, with or without sugar, is traditionally the first drink of the day. Butter tea, made from compressed tea leaves, butter, water, milk and salt is a popular delicacy.[181] The staple diet is eaten twice a day. The food in these regions is less spicy, cooked with either little or no oil, and semi-boiled. The first meal is eaten in the morning with cooked rice, dal, cooked vegetables mixed with potatoes, some fermented meat or milk products—dahi, or yoghurt; mohi, which is spicy buttermilk; and chhurpi, a kind of hard cheese made from cow or yak milk—and pickles commonly called bhat-dal-tharkari-achar. The second meal is dinner in the early evening, which consists of the same bhat-dal-tharkari-achar. Bhutia and Lepcha usually eat thukpa noodles in soup.[181]

Traditionally, the people of the region have preferred cooked rice as the staple; however, roti made of wheat is also popular, mostly among the urban population. Cooked ground maize is sometimes eaten as staple food mostly in rural areas, where it might be eaten with mohi and gundruk, a fermented vegetable.[181] Goyang, another fermented food, is made from the leaves of a local wild plant, abundantly available during the monsoon. The leaves are fermented for a month and then consumed for several months afterwards. Boiled with yak meat or beef to make a hearty thukpa soup, it is commonly prepared in Sherpa homes though seldom sold.[181]

Some ethnic foods have cultural value in festivals. Celebration of festivals with the consumption of sel roti, a fermented cereal-based fried doughnut-like confectionery, is a custom of the Gorkha. Dahi, a fermented milk product, is consumed as a savoury addition to daily diets.[181] It is also used by the Gorkha to make a paste with rice and food colour for applying to the foreheads of the younger members of the family by their elders during festivals and marriages. Alcoholic drinks can have a similar dual purpose; in addition to being consumed directly they are offered to gods and in the veneration of the dead. In some communities, they have been employed in spirit possession rituals.[181]

Some Brahmin Gorkhas are vegetarians. Non-vegetarians eat chicken, mutton, buffalo, and pork. Beef is taboo to a majority of the Gorkha except for Tamang and Sherpa. Newar prefers buffalo meat.[181] About two-thirds of people prepare ethnic fermented foods at home for consumption. Cooking is usually done by women. Traditionally members of the family sit together on bamboo mats in the kitchen, and meals are served by the female members of the family and then usually eaten by hand, though chopsticks made of bamboo are commonly used by the Bhutia and Tibetans. Plates are made of brass or have a thin layer of brass.[181]

Popular alcoholic beverages sold in Darjeeling town include tongba, Jnaard (pronounced as Jaar) and chhaang, variations of a local beer made from fermenting finger millet.[182][183] A popular food in Darjeeling is the momo, a steamed dumpling containing pork, beef, chicken or vegetables (cabbage or potatoes) cooked in a doughy wrapping and served with watery soup. Wai-Wai, originally a product of Nepal, is a packaged snack consisting of noodles which are eaten either dry or in soup form.[181]

Education[edit]

Students join a march for increased water supply in Darjeeling, May 2007

Primary school children in 1976

A study conducted between 2012 and 2014 observed that the elite schools established in Darjeeling during the late 19th century for the education of British children[r] were offering English-medium instruction of high quality to Indian children.[184] The Jesuit boys' school, St Joseph's (usually called North Point), the Anglican boarding school for boys, St Paul's, the co-educational Methodist school Mount Hermon, and the Catholic girls' school Loreto Convent (see Map 1) were attracting students from faraway places, including Burma and Thailand.[184] North Point and Loreto had established colleges, St. Joseph's College and Loreto College (now Southfield College); these along with the Darjeeling Government College, a co-educational college founded in 1948, made up the three colleges of Darjeeling.[184] All were affiliated to University of North Bengal in Siliguri.[185] The same study suggested that the private schools were no longer catering only to children of the affluent.[184] Some lower-middle-class families in Darjeeling were sending their children to North Point and Loreto, despite their high fees, in order to give them better future opportunities.[184] By 2014, colleges had increased the enrollment of students from rural backgrounds.[184] In fields such as engineering and computer science, the local colleges, however, were less able to offer the professional training or career placement facilities of India's growth centres, which had caused some students to leave Darjeeling after high school.[186]

In the Darjeeling municipality in 2003–2004, there were 16,015 students in primary schools, 5169 in higher-secondary schools, and 3,825 in colleges and universities.[187] According to a 2013 study, few students attended college for there seemed little scope for realizing "middle-class aspirations in Darjeeling through educational credentials".[187] It noted that the fees in the better-funded private colleges, although affordable for the upper-level government officials or successful businesspersons, were too high for the lower-middle-classes in town.[188] This put pressure on the only affordable college, the government college in the town's centre.[188] It was lower-priced but poorly funded, with broken windows, leaking roofs, and absent teachers, causing the students to feel neglected and affecting their attendance.[188] The teachers for their part were unable to meet the extra demands placed on them.[188]

A 2022 study noted that among the population of Darjeeling that lives in slums (comprising 11.72% of the town's population as per the 2011 census), 13% had finished primary school but had gone no further, 45% had finished high school (grade 10) but no further, 13% had finished higher-secondary (grade 10+2), and 10% had been to college.[189] A 2018 study reported that the water crisis in the Darjeeling town has especially affected adolescent girl students who go to government schools.[190] Many do not have access to hygiene facilities such as toilets and bathrooms, either in their homes or at school, particularly for hygiene management during menstruation. The study found that most toilets in government schools were not usable and that no government schools had "proper sanitary facilities for girls. There is no system of water in the toilets and no arrangement for cleaning the toilets daily." It stated that many girls do not drink water during the day for fear of having to use the school toilets.[190]

Most tea plantations make no more than lower primary school instruction available on site.[191] As a result, tea garden workers have typically had fewer opportunities for education.[192] As of 2022, a little over a third of the female workforce and half the male were educated up to grade 8. The workers attributed this to their tea garden's remoteness and lack of means in the family during their childhood.[192] Some families have raised chickens or livestock or opened a corner shop to make more money; their children have gone to nearby towns to study in private schools in which the medium of instruction is English, which is thought to offer better career opportunities.[191] The Nepali language was accepted as a teaching language in all primary schools with a Nepali-speaking majority in the Darjeeling district in 1935.[66]

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