



OPERATIONAL GUIDELINES FOR METROPOLITAN SURVEILLANCE UNITS

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NATIONAL CENTRE FOR DISEASE CONTROL
MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA

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1. Background

1.1 Existing framework for urban surveillance: The Integrated Disease Surveillance Programme (IDSP) provides the foundation for surveillance of epidemic-prone diseases in India including the urban areas. The IDSP initially started as a project with support from the World Bank in 2004 and continues as a programme under the umbrella of National Health Mission (NHM). The programme aims to strengthen disease surveillance in the country by establishing a decentralized laboratory based and information technology enabled surveillance system for epidemic prone diseases to monitor disease trends and to detect and respond to outbreaks in early phase raising the early warning signals, so that timely and effective public health actions can be initiated at the districts, state and national levels. The IDSP has urban surveillance as one of its key components. Presently, urban surveillance under IDSP is being supported in a few metro cities – Ahmedabad, Chennai, Kolkata, Bengaluru and Mumbai.

1.2 Challenges of disease surveillance in urban areas: India, with its population of over 1.3 billion is facing major challenges due to rapid urbanization. If the current growth rate continues, by 2026, the total urban population is estimated to increase to 506 million from the present figure of 285 million with migration from rural to urban areas contributing to the largest share. Rapid expansion of cities over past two decades created a challenge for effective implementation of disease surveillance in urban areas. If no major realistic steps are taken with immediate effect, it will not be long before millions of people living in cities face a huge burden of health hazards. At the present trend, the existing water and vector borne diseases are expected to remain the dominant cause of morbidity and mortality. On the other hand, malignancies, HIV/AIDS, and lifestyle and stress related diseases would emerge as major new challenges¹. Globalization and international travel also enhanced vulnerability of cities to disease outbreaks.

Identifying these challenges, the Government of India launched the National Urban Health Mission (NUHM) under the flagship National Health Mission in 2013 covering all state capitals and cities/towns with a population of more than 50,000. The NUHM aimed to provide resources for addressing health problems in urban areas meeting special health care needs of the city with a focus on vulnerable and poor in partnership with communities, NGOs, for and not for profit private sector. Slum residents and other marginalized groups including homeless, street children and migrant workers are identified as special target groups and the mission envisaged mapping such groups using Geographical Information System (GIS).

Due to population concentration and connectivity, cities will remain gateways to infectious disease transmission, with consequences that extend beyond health, as seen with COVID-19, Zika, Influenza, etc. Typically, the urban health system is built around hospitals with

¹ Urbanization in India – a biggest public health challenge. Sarkar, A*; Mishra, T*; Mondal, P; Aggarwal, S; Program and Abstracts: The Seventeenth Conference of the International Society for Environmental Epidemiology (ISEE)

limited attention to primary health care. Rapid growth of private sector both qualified and informal to address gaps in the public healthcare systems usually remains the first contact of care and the critical source of information on disease outbreaks. Therefore, early detection and control of epidemics is an important necessity for cities, requiring robust city-based surveillance, supported by outbreak identification, confirmation, and control. These activities should be well-coordinated with neighbouring municipalities, city hospitals, and laboratories, both public and private.

From the implementation experiences of IDSP, the need to augment current district surveillance unit-based model with additional high level technical and analytical skills including appropriate laboratory support for rapidly growing cities has emerged. Such support however should be dove tailed to specific needs and vulnerabilities of each city to better prepare them for handling disease outbreaks and future and pandemics.

1.3 Lessons from COVID-19 Pandemic: The COVID-19 pandemic highlighted the vulnerability of cities to Pandemics. A recent UN-Habitat report underlined the urban centric character of COVID-19 and pointed that more than 1430 cities were affected by the pandemic in 210 countries with well above 95% of total reported cases located in urban areas². Within India, thirty cities have contributed to 79% of reported COVID-19 cases and a report by ICMR highlighted that the risk of COVID-19 is 1.09 times and 1.89 times higher respectively in urban areas and urban slum-like conditions compared to the rural areas³. Increased migration due to better job opportunities steeply enhanced growth of cities globally and India is no exception to this trend. Cities being major travel hubs further accentuated their vulnerability to disease outbreaks in the globalized world.

An important vulnerability of cities is zoonotic diseases due to species-crossing of infectious disease agents in wholesale and retail wet markets and large number of domestic pets and poorly regulated small livestock holdings. Limiting such risks requires a “One Health” approach ensuring adequate interface and effective coordination between animal and human health sectors. City-level One Health coordination structures need to be created to provide early alerts on zoonotic disease outbreaks.

1.4 PM-ABHIM: Launched by the Hon. Prime Minister on October 25, 2021, the PM Ayushman Bharat Health Infrastructure Mission (PM ABHIM) is one of the largest pan-India schemes for strengthening healthcare infrastructure across the country based on lessons from COVID-19 pandemic. It complements the National Health Mission and aims to fill critical gaps in public health infrastructure including critical care facilities and primary care in both the urban and rural areas.

PM ABHIM specifically targets to expand current IT enabled disease surveillance system at block, district, regional and national levels, with targeted attention to augment

² UN-habitat COVID-19 response plan 2020. [final_un-habitat_covid-19_response_plan.pdf \(unhabitat.org\)](https://unhabitat.org/publications/final-un-habitat-covid-19-response-plan.pdf).

³Swarajya (2020-June11) [ICMR Serosurvey: Just 0.73 Per Cent Of Population Had Evidence Of Past Exposure To Coronavirus \(swarajyamag.com\)](https://www.swarajyamag.com/health/icmr-serosurvey-just-0.73-per-cent-of-population-had-evidence-of-past-exposure-to-coronavirus)

surveillance systems in 20 cities through establishment and operation of Metropolitan Surveillance Units (MSUs). The Integrated Health Information Portal (IHIP) will be expanded to all States/UTs, and integrated public health laboratories (IPLs) will be set up in all districts to ensure people have access to a full range of diagnostic services. In addition, National Institute for One Health, four new National Institutes for Virology, a Regional Research Platform for WHO Southeast Asia Region, ten Biosafety Level III laboratories, and five new Regional National Centres for Disease Control will be set up. The PM ABHIM also aims at establishing 15 Health Emergency Operations Centres and operationalize 33 new points of entry and strengthening of 17 existing ones for effectively detecting, investigating, preventing, and combating Public Health Emergencies and Disease Outbreaks. It will also work towards building up trained frontline health workforce to effectively respond to public health emergencies.

2. Rationale and Objectives of Metropolitan Surveillance Units (MSUs)

2.1 Rationale

Metropolitan cities contribute to a substantial share of vulnerable populations living in slums and people living in difficult situations such as migrant workers, homeless and daily wage laborers. These cities have elevated risk of epidemics due to large population size, high population density, inadequate drinking water facilities, poor sanitary and environmental conditions, and rapidly expanding developmental activities like large infrastructure projects making disease surveillance a challenging task. There is also an increased vulnerability of metropolitan cities for outbreaks of novel diseases due to huge domestic and international travels. Further, the governance in the metropolitan cities is predominantly through the municipal corporations with a limited presence and role of the district based systems and programs like IDSP. These factors highlight the need for augmented support systems and capacities to the existing IDSP systems in metropolitan cities.

2.2 Objectives and key tasks:

Function as a hub of disease surveillance in the city:

- Facilitate real-time reporting of surveillance data on outbreak-prone diseases from public and private sectors in the city
- Generate and verify alerts on health related events from different sources
- Support collection and analysis samples for water, food and vector borne and zoonotic diseases working closely with relevant teams that have the statutory role
- Facilitate collaborative surveillance by ensuring onboarding of all reporting units - private and government.

Facilitate planning and coordination of response to disease outbreaks

- Institute effective measures to prevent and/or contain disease outbreaks including geo-spatial maps of geotagged facilities reporting outbreaks frequently.
- Develop and update an all hazards plan involving all key stakeholders and define coordination structure for the city
- Promote coordination among key stakeholders – Municipal corporation structures, State & District Surveillance Units, State Public Health Lab, Infectious Disease (ID) Hospital, Medical Colleges, Department of Animal Health, Food Safety Laboratories, Veterinary Hospitals, National Centre for Disease Control (NCDC) and/or its branch, Health Emergency Operations Centres (HEOCs); Points of Entry (POE) where present, Regional Virology Centres, Institutions managing hazardous chemical & radiological material, toxicology and poisoning centres, private sector healthcare providers, Civil Society organizations and community

Build and sustain city capacity for disease surveillance and response

- Prepare and implement a capacity building plan for all stakeholders
- Undertake annual table-top or other simulation exercises to assess system readiness
- Orientation and training of stakeholders (mentioned above) in principles of Incident Management System as per the all hazards plan

3. Core guiding principles for supporting Metropolitan surveillance under the PM ABHIM

- The primary focus of the metropolitan surveillance unit will be on diseases under surveillance listed under IDSP
- The program gives flexibility to cities to identify and address specific gaps
- The IT systems will utilize IHIP with appropriate additional modules to respond to city specific needs
- The program will not have a fixed blueprint for staffing but could support up to fifteen core staff addressing critical gaps identified by the city administration and depending on city tier. The core staff shall be supported by 5-6 additional staff.
- Laboratory support is available and is based on self-assessment by the corporation with respect to the nature and type of laboratory activities required to be undertaken. If required, a BSL-II laboratory can be established under the MSU.
- Capacity building will focus at all 3 levels – field level, mid-level (core staff) and senior level staff (program managers).

4. Support available under the PM-ABHIM for MSUs

The PM-ABHIM aims to expand urban disease surveillance in India by setting up Metropolitan Surveillance Units (MSUs) for ten Tier I cities and ten tier-II cities. (See Annex 1 for details.) These inputs for establishment and operation of MSUs will be available for the duration of the PM-ABHIM implementation after which the City Municipal Corporation with or without financial support from the state will take over the responsibility of running these units.

All components of disease surveillance included under IDSP will be retained under the PM ABHIM for the MSUs. In addition, the MSU will have some new components to leverage state of the art surveillance technology for robust and efficient decision making.

IDSP components under MSUs:

- Integration and decentralization of surveillance activities
- Human resources development through training of surveillance officers at different levels, Rapid Response Team (RRT) members, and other medical and paramedical staff on principles of disease surveillance.
- Use of Information Communication Technology for collection, collation, compilation, analysis, and dissemination of data.
- Strengthen public health laboratories.
- Promote inter sectoral co-ordination for zoonotic diseases as per principles enshrined under the One Health Approach.

Epidemiological investigation & containment of Outbreaks

Additional Components envisaged for Metropolitan Surveillance:

- Augmenting public health surveillance capacity with provision of human resources, logistic and geo-spatial surveillance tools.
- A public health surveillance & response center (PHSRC) with competent human resources supported by adequate IT and communication infrastructure will be the core hub of the MSU.
- Use of GIS tools to identify vulnerable populations vis a vis health threats and hazards.
- Rapid Response Teams (RRTs) for supporting infectious disease threat reduction and response.
- In addition, cities depending on their needs and capacity may consider coordination of environmental surveillance for detecting novel diseases and
- Monitoring of anti-microbial resistance trends can be undertaken depending upon the availability of trained HR.

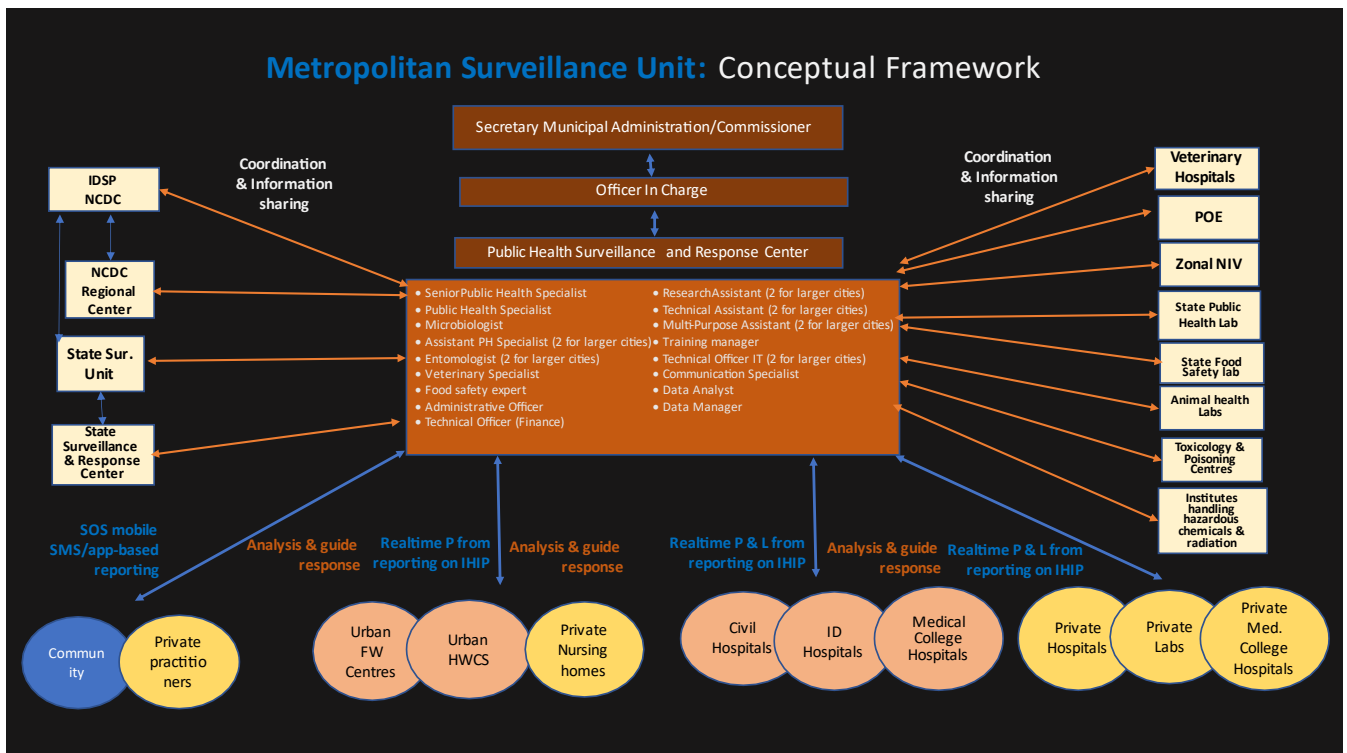
5. Organizational structure of MSU

The MSU will be integrated within the city governance structure under the overall leadership of the Secretary (Municipal Administration) / Commissioner who may identify a nodal officer of adequate seniority for this purpose (preferably at the level of Additional Commissioner/Deputy Commissioner). Figure 1 describes the Conceptual Framework for the MSU.

The day to day functioning of the MSU will be managed by an officer of adequate seniority who will be designed as “Officer in-charge MSU (OIC-MSU)”. The OIC-MSU would be a regular employee of the municipal health department, preferably at the level of Joint Director or at least Assistant Director or equivalent, working under the Chief Health Officer / Executive Health Officer of the Corporation. For the purpose of this program, the OIC-MSU will report to the nodal officer.

The Additional /Deputy Commissioner will provide overall stewardship including promoting effective coordination across different city departments. The Commissioner of the city corporation will provide the oversight and guidance. The Central Surveillance Unit (CSU) of IDSP based at NCDC will provide overall technical stewardship to the MSUs and support capacity building. The CSU will also facilitate sharing of innovations evolving lessons between MSUs and also create a platform for global learning.

Figure 1: Conceptual Framework



6. Functioning of the MSU

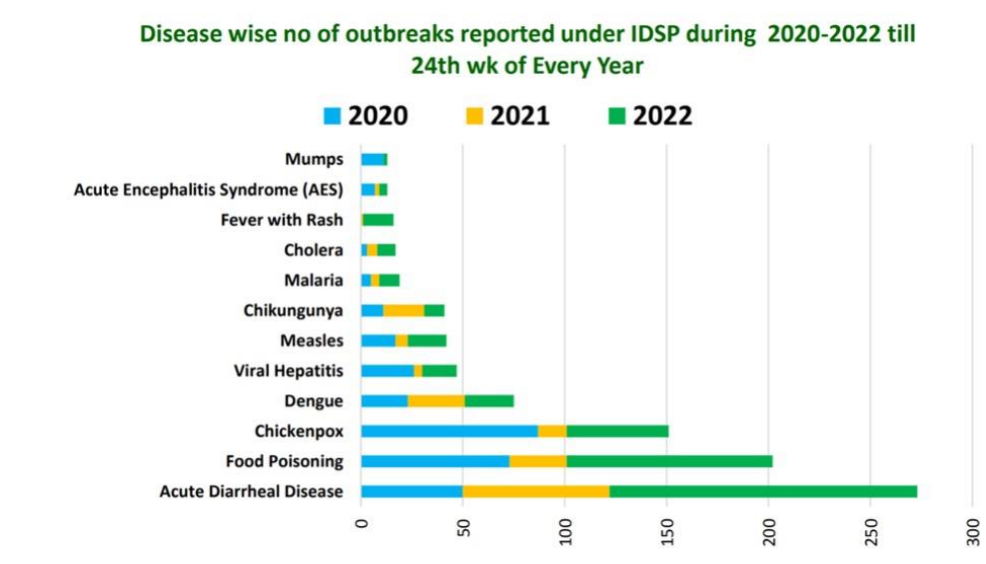
- The MSU is expected to strengthen surveillance activities in the city / corporation area through inclusion of all health facilities in the IDSP reporting network and ensure the reporting as per the mandate of the programme
- The MSU will maintain constant coordination and analyse real-time data being generated by reporting units from public and private sectors through IHIP.
- The MSU will identify alerts for communicable disease outbreaks and provide technical guidance to the response.
- The MSU will join the RRTs for outbreak investigations as and when required.
- The MSU through PHSRC will maintain constant contact with the state surveillance and response centre (or State PHEOC), state surveillance unit, NCDC regional centre and CSU, POE, IDSP at NCDC for additional support and technical guidance, especially for handling outbreaks of novel diseases and situations where multi-city/state response is required. The PHSRC will establish a system of regular coordination with the Animal Husbandry Department including hospitals and laboratories, State Public Health and Food Safety Laboratories, Toxicology and Poisoning Centres and Institutions handling chemicals and hospitals to ensure prompt sharing of information on all hazards (e.g. zoonotic and foodborne disease outbreaks including potential new toxins and radiation hazards).

7. Coordination with other departments and agencies

Coordination with other municipal departments: The key departments with the city governance with which MSUs should have strong linkages to ensure effective infectious disease surveillance outside the health sector include veterinary, food safety, water and sanitation, education, urban ICDS and slum development. It would be desirable to establish a formal coordination platform under the Additional/Deputy Commissioner for these departments and involve them actively in the city outbreak response and preparedness planning process. Quarterly meetings under the chair of the Addl./Deputy Commissioner will help to identify and resolve any operational bottlenecks in coordination.

Water and sanitation: Most of the communicable disease outbreaks reported by the IDSP are either directly related to poor quality water, inadequate sanitation, or lack of food hygiene (Acute diarrhoeal diseases, food poisoning, cholera, viral hepatitis) or indirectly through breeding of vectors (Dengue, Chikungunya, Malaria). Figure 2 provides disease wise no of outbreaks reported under IDSP during 2020-22.

Figure 2: Disease wise outbreaks reported under IDSP during 2020-22 till 24th week of every year



Strong partnership and coordination between MSUs with city water and sanitation department/board is therefore critical to prevent water and vector borne diseases. This involves regular checking of water samples for coliform contamination and identification of areas for water logging using GIS maps to take appropriate preventive measures including community education. Collective targeted information campaigns should be jointly planned and implemented to improve community behaviours to minimize risks of water, food and vector borne diseases at appropriate times of the year. In addition, cities depending on their needs and capacity should consider coordination of environmental surveillance for detecting novel diseases and monitor anti-microbial resistance trends.

Veterinary: The key areas for linkage include sharing surveillance information of animal health diseases with potential impact on human health and ensure coordinated response when an alert of

a zoonotic disease outbreak is detected. In addition, joint inspection of potential hot spots for zoonotic disease transmission (such as informal livestock yards, poultries, wet markets, zoos, and slaughterhouses) should be undertaken as part of assessment of incidents that are reported through the event based surveillance system. To monitor, in the municipal corporation areas, the implementation of National Antimicrobial Resistance Containment Program and National One Health Program for prevention and control of zoonotic diseases under the NCDC.

Education: Partnership with education department will help to promote good hygiene practices among school children and help school to home transmission of such good practices. Training of teachers in detection and reporting of common communicable diseases among school children and linkages with school health programme will also be important.

Urban ICDS: Most cities operate urban ICDS projects and pre-school children that gather at anganwadi centres will be vulnerable for spreading communicable diseases. Training of anganwadi workers in identification of common diseases in children like measles, chickenpox, and jaundice etc. and prompt SOS reporting to the MSU should be encouraged in partnership with medical officer IC of the program.

Slum development: Overcrowding, inadequate water and sanitation services and large number of migrant populations with lack of social cohesion make slum residents more vulnerable for infectious diseases. GIS mapping of vulnerable slums and engagement with community leaders and ASHA workers in partnership with the slum development department to build capacity in identification and SOS reporting of communicable disease outbreaks in their neighbourhood and participation of response will therefore be important.

Table 1 below outlines indicative roles of various agencies for ensuring coordinated action and response.

Table 1: Indicative Roles of various agencies for coordinated action and response				
Department	All Hazard planning	Surveillance information sharing	SOS reporting	Joint investigation and response
City Veterinary Department	Yes	Yes	Yes	Yes
Veterinary hospitals		Yes	Yes	
State PH Laboratory	Yes	Yes	Yes	
State Food Safety Laboratory		Yes		
Points of Entry	Yes	Yes	Yes	
State Surveillance & Response Centre		Yes	Yes	Yes
State Surveillance Unit	Yes	Yes	Yes	Yes

District Surveillance Units	Yes	Yes	Yes	Yes
NCDC regional branches	Yes	Yes	Yes	Yes
NCDC State branches	Yes	Yes	Yes	Yes
CSU, NCDC	Yes	Yes		Yes
Toxicology & Poisoning centres	Yes		Yes	Yes
Institutes handling hazardous chemicals and radiation	Yes		Yes	Yes

8. Infrastructure

The State Health and Family Welfare Department through the local municipal corporation/ local municipality shall facilitate and coordinate the establishment of the Metropolitan Surveillance Unit. The exact nature and type of support for establishment of MSUs through PM-ABHIM would be in accordance with the MoUs signed between all the three parties.

In cities, where laboratory facility (BSL 2 level) and PHSRC are also envisaged to be part of an MSU, it would need to meet additional requirements for physical infrastructure, ICT infrastructure, office equipment/supplies amongst other. Additional safety and security arrangements, in keeping with local policy and regulations, would also need to be ensured.

A. Physical infrastructure - Site requirement and layout:

The MSU can either be housed in a dedicated, specifically built for the purpose, or set up in an existing multi-purpose space. The MSU should be of sufficient size to accommodate all its functions in reasonable comfort. It must have adequate sanitary facilities, rest areas and food amenities. There needs to be sufficient space to accommodate the personnel and the equipment required to run it.

The MSU should have adequate space for its staff and must contain both open common areas and closed workspace suitable for meetings, conference and small group activities. The configuration of the space should provide both meeting areas and relatively quiet working spaces.

Ideally, the full-fledged MSU will be housed in a dedicated multipurpose space, having an area of about 5,000 sq. feet built-up space with all essential amenities (such as access to electricity, water supply, sanitation, waste disposal etc).

The MSU should meet the basic requirements of disaster survivability and access and must have a robust structure, secure water and food supply and an emergency source of electricity.

The physical MSU layout will have the following functional spaces (Annex 2):

- 1) Operational room/space with workstations
- 2) Communication centre cum seminar room
- 3) Officer in-charge room
- 4) Space for PHSRC
- 5) Personal hygiene facility
- 6) Water/food storage and pantry facility
- 7) ICT support /equipment room
- 8) Back-up electricity room
- 9) Access control systems
- 10) Provisions for a biomedical waste holding/storage room/area and provisions for disinfecting liquid wastes.

B. ICT infrastructure:

The information and communication technology (ICT) infrastructure and technological solutions will incorporate hardware and software systems, internal and external telecommunications and all aspects of information management, including but not limited to:

- Computers: Ensure each staff to have functional and up to date computer with all adequate software and storage capacity.
- Internet: At least 100 MBPS, 24/7 hours dedicated local network connection so that staff can access IDSP/IHIP portal as well as MSU surveillance network. Ideally, all MSU units/ computers should be virtually connected by an internal network.
- MSU to have all necessary software applications required for proper function of the system and safety and usability of data collected as part of the ongoing surveillance. As data use is important, MSU should also be equipped with analytical data packages or tools that would be able to automatically analyse data and send alerts.
- Telecommunications with MSU personnel having workstation computers with internet connections and either a mobile or hardwired telephone. Also, there would be facility to conduct video conferencing.
- MSUs will be provided with IHIP login credentials for data reporting, monitoring, and surveillance purposes.

C. Office furniture, equipment and supplies:

Offices should have all the necessary furniture, equipment and supplies to ensure proper work performance and functioning.

D. Physical safety and security:

The MSU must be physically and environmentally secure, and accessible and survivable in the event of a threat or disaster. All safety codes should be enforced following local laws and regulations, including fire safety and other emergency situations.

- Guidelines for emergency situations available
- Camera surveillance of the unit and public space
- Security of offices, computers and equipment

An indicative physical design / layout of MSU is in Annex 2. Indicative list of items required for meeting requirements stated in A, B and C is in Annex 3.

9. Information and data standards

Since MSUs will report data through IHIP platform, it will conform to information & data standards as pertaining to IHIP.

In this regard, applicable health data standards and health information technology standards are used in IHIP as per the Information and Communications Technology (ICT) Master Plan approved by MoHFW. It facilitates the interoperability of public health surveillance data, or the ability to exchange surveillance data between software applications and computer systems within larger subnational or national health information systems. This method enables the rapid aggregation and presentation of surveillance data for decision-making.

All existing datasets relevant to public health surveillance were reviewed and documented. MOHFW developed IDSP surveillance data submitting entities and executed specific Memorandums of Understanding for data access and use from all those identified entities. IHIP now contains numerous data “registries” (e.g., for health facilities, land area, administrative boundaries, essential medicines, population, patients, and users) that are interoperable and accessible to authorized users and by those national health programs that are hosting their data.

IHIP has inbuilt mechanisms to ensure data security, privacy, confidentiality, and interoperability with other related systems. Under IHIP, Integrated Disease Surveillance Program (IDSP-IHIP) application has been developed to capture real-time, case-based information for 33+ epidemic prone diseases. MSU unit network will utilize the Integrated Health Information Platform (IHIP) for its information and data system needs.

Some important characteristics of IHIP are:

- The platform is compliant to e-Governance Standards as prescribed by the Ministry of Electronics & Information Technology (MeitY), Government of India, to ensure interoperability in a secure and scalable environment. (MDDS - Demographic (Person Identification and Land Region Codification <http://egovstandards.gov.in/sites/default/files/2021-07/MDDS%20Demographic%20Ver%201.1.pdf>)
- The platform uses a standard master health facilities registry comprises of more than 2.5 lac health facilities across the country. This list is continuously being updated by the respective states/districts and has complete geographic and administrative distribution.
- The platform is sharing common e-Governance standards with other GoI programs and respective web portals. IHIP is connected with various ministries/portals receiving and providing KPI information related to health information data.
- All necessary security systems and protocols are implemented on IHIP to ensure data security and confidentiality. In this regard, security audit of the IHIP web application has been done by ‘Indian Computer Emergency Response Team (CERT-In), (MeitY),

emplaned Information Security Auditing Organization and platform has been certified to be compliant to prescribed standards.

- Guidelines for Indian Government Websites', Ministry of Electronics & Information Technology (MeitY), Government of India was used for UI interphase.

https://darpg.gov.in/sites/default/files/gigw-manual_Revised2018_0.pdf)

10. Staffing

Core HR: For the MSU, a core HR team comprising of 17 staff which addresses critical HR gaps identified by the city administration and depending on the city tier (type of municipalities/corporation) is suggested. These 17 positions could comprise of the following:

- 1x Senior Public Health Specialist (Smaller cities may consider public health specialist)
- 1x Public Health Specialist
- 1x Microbiologist
- 1x Assistant PH Specialist (2 for larger cities)
- 1x Entomologist (2 for larger cities)
- 1x Veterinary Specialist
- 1x Food safety expert
- 1x Administrative Officer
- 1x Technical Officer (Finance)
- 1x Research Assistant (2 for larger cities)
- 1 x Technical Assistant (2 for larger cities)
- 1 x Multi-Purpose Assistant (2 for larger cities)
- 1x Training manager
- 1x Technical Officer IT (2 for larger cities)
- 1x Communication Specialist
- 1x Data Analyst
- 1x Data Manager

The position of Officer in charge-MSU (OIC-MSU) will be from the government cadre while rest of positions will be contractual. Indicative TORs will be developed in consultation with the states/city corporation.

Any other HR deemed essential by the municipal corporation may also be considered among the following categories.

Full range of HR (core HR + those listed below): In addition to the core categories of HR listed above, a full-fledged MSU can include additional categories of Human Resources which have been suggested for consideration by NCDC. These are:

- Biotechnologist
- Pharmacologist / pharmacist
- Laboratory technician

These indicative categories of human resources may be modified in keeping with the existing staffing and surveillance structure or mechanisms in the state and vision for Metropolitan Surveillance.

11. Capacity Building and Knowledge Sharing

The capacity building referred to in this section includes the role of MSU staff as both resource persons and trainees. Capacity building will focus at 3 levels – field level, mid-level core staff and senior level staff program managers. This will include strengthening capacity for operating the MSUs as well as collecting and using data to meet the MSU's objectives.

Capacity building will include but not limited to the following:

- Develop MSU staff proficiency in important epidemiologic competencies (e.g., conduct of field investigation of a potentially serious public health problem, collect and interpret epidemiological data, evaluate a public health surveillance system, etc) and be part of the epidemiologic intelligence service training/frontline field epidemiology training network.
- Provide mentorship to MSU staff through intensive practical engagement and support-supervision visits.
 - Provide expertise and guidance in ensuring a modern health information system architecture for the MUs, including systems interoperability and information exchange protocols to encourage cross-platform sharing of data among relevant stakeholders.
 - Provide technical assistance to specifically address and improve data quality issues.
- Regularly collaborate with MoHFW and NCDC to use and publish data. Hands-on data interpretation and data workshops will be carried out.

12. Standard Operating Procedures

Routine reporting and trend analysis

1. Daily surveillance reporting analysis from all IDSP reporting units
2. A weekly report capturing the key performance indicators of the MSU is expected to be prepared and shared with all relevant stakeholders. IDSP CSU shall support the MSUs in this activity.
3. The weekly report shall include some key public health messages pertaining to prevention of seasonal diseases.

Reporting of outbreaks/health related alerts: Four data sources

1. SOS reporting by community/ practicing medical professionals
2. Monitoring of Reports from the media (Print & electronic including social media)
3. Health condition alerts generated by IDSP-IHIP

Inputs from collaborative surveillance sources such as WHO EIOS, ProMed, GOARN etc In such events ideally :

1. All alerts should be assessed by an Epidemiologist (within 24 hours of alert generation).
2. Further plan of action to be guided by the initial assessment and should help the MSU in deciding if an outbreak investigation is required or not. This decision should be taken within 48 hours of the alert generation.
3. The RRT deployed for outbreak investigation shall utilize IDSP-IHIP for all documentation including the final report submission.

13. Funds flow, financial reporting and auditing

The funds for the MSU establishment and operationalisation will be released by NCDC to the respective Municipal Corporations (MC), who will be responsible for maintaining adequate financial management arrangements with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. Such funds should be utilised by the MCs for the intended purposes only, as agreed upfront in the MoU with State and Centre (NCDC).

The funds for MSU will be released from NCDC to the MCs as 'Grant-in-Aid' (Starting FY 2023-24), under the Central Nodal Account (CNA) guidelines issued by the Government of India vide notifications dated 18 April 2022, and as amended/ updated from time to time. The funds will be retained within the CNA Parent-Child banking arrangement – NCDC will maintain the parent account and the Municipal Corporations will operate the child account. Quarterly authorisations to spend will be provided by the Parent account holder to the Child account, based on a forecast of expenditures provided by the latter.

All transactions will be done by the MCs through Gol's Public Financial Management System (PFMS), following a standardised chart of accounts prepared by NCDC. PFMS will provide a real-time update of the expenditures and balances at each MC. All original invoices and vouchers will be maintained by the MC and may be produced to NCDC on request. The unspent authorisations will lapse at the end of the year.

The MCs will submit audited Utilisation Certificates (UC) in line with the GFR provisions – the same will be provided by NCDC to the C&AG for the Program expenditure audit. The audited UC will include confirmation from the auditor regarding compliance to GFRs/extant procurement rules and regulation for procurements under the Scheme carried out by the MCs. Additionally, the statutory auditors of the MC will audit the MSU expenditure and disclose it appropriately (as a separate schedule). Such audit reports will be submitted by the MCs to NCDC within a period of 12 months from the close of the financial year, for the latter's review and records. In the event additional assurance on use of funds is required, the MC will provide access to the accounting records and documents to the extent of the expenditures on MSU to any auditor appointed by Gol/ NCDC for this purpose.

14. Procurement procedures, records and complaints handling

This section provides procurement guidelines to be followed by the MSUs. It defines the main features of sound public procurement as procuring Goods, Works, and Services with due consideration for value for money (economy, effectiveness, and efficiency) without regard to political or other non-economic factors, in order to obtain the best value for money spent for intended.

The agreed activities/ actions to be carried out must conform to the following measures:

- i. The activities should have prior agreement from NCDC.
- ii. To the extent possible, all procurement shall be done from the GeM portal and as per the provisions of GFR.
- iii. The specifications in terms of quality, type etc., as also quantity of goods / works / services to be procured, should be clearly spelt out keeping in view the specific needs of the procuring agencies.
- iv. Offers should be invited following a fair, transparent and reasonable procedure.
- v. The procuring authority should be satisfied that the selected offer adequately meets the requirement in all respects.
- vi. The procuring authority should satisfy itself that the price of the selected offer is reasonable and consistent with the quality required.
- vii. At each stage of procurement, the concerned procuring authority must place on record, in precise terms, the considerations which weighed with it while taking the procurement decision.
- viii. Latest schedule of rates for preparing the plans and estimates for works should be used.
- ix. Any procurement related complaints would be handled and resolved properly and will be reported to NCDC.

Agencies may use any e-procurement system as approved by the Government, including Government e-Marketplace (GeM). However, agencies should ensure that the firms debarred by the World Bank (list available at <https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>) don't get the award of any contract.

World Bank "Guidelines on Preventing and Combating Fraud and Corruption" dated February 1, 2012 and revised on July 10, 2015 (<https://ppfdocuments.azureedge.net/3682.pdf>) shall apply to this Program. Requirements under these guidelines include but not limited to (a) borrower's obligation on informing the World Bank about all Fraud & Corruption related allegations and investigations, (b) the World Bank's right to conduct administrative inquiries, and (c) Ineligibility of debarred firms for contract awards.

These guidelines shall be applicable to all activities within the Program and not the parts of the government program that are outside this program. As an action item it is required that a) all bidding documents refer to the World bank's Anti-Corruption guidelines and the bidders must agree to these clauses and b) at the time of bid opening each procurement agency shall ensure that none of the participating bidders is listed in the World Bank's latest online list

(<https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>) of debarred firms.

Para to be included in the Bidding Document: All MSUs are required to ensure inclusion of the following paragraph in the Bidding Document

“This tender is covered under World Bank “Guidelines on Preventing and Combating Fraud and Corruption in Program for Results Financing dated February 1, 2012, and revised on July 10, 2015 (<https://ppfdocuments.azureedge.net/3682.pdf>). Requirements under these guidelines include but are not limited to (a) the borrower’s obligation on informing the World Bank about all Fraud & Corruption related allegations and investigations, (b) the World Bank’s right to conduct administrative inquiries, and (c) Ineligibility of debarred firms for contract awards. The latest list of the Bank’s debarred firms is available <https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>.”

Record keeping: Each MSU would be required to ensure appropriate procurement records are maintained. Procurement records include all documents relevant to the pre-tendering, during tendering and after tendering i.e., Contract administration phases. All procurement records shall be stored carefully in such a way that it should available at any time for verification and Audit. The files of the concerned work/contract shall be maintained with the following documents:

- Detailed of approved activity
- Procurement plan /Estimate
- Technical Sanction and Admin Approval
- Advertise published in Newspaper and
- Copies of all Tenders received
- Comparative Statement of Tenders and Minutes of committees and Proceedings.
- Letter of Acceptance of tender and Copies of Earnest Money and Security Deposit receipts
- Contract Agreement copy /Work Order
- Contract amendments, if applicable
- Any other relevant documents which forms the part of contract

15. Bio-medical waste management

Epidemiological investigations for diseases involve collection of samples from suspected cases in the field and their analysis in the laboratory in the MSU. These activities generate biomedical wastes that, if not managed properly, have a serious potential risk for infections among the frontline health workers, laboratory staff, communities and environment. The risk becomes more challenging as large number of outbreaks are developing from viruses and microbes that have not been traditionally associated as known cause of diseases and for which the epidemiological information and preventive and control measures are relatively less known.

The biomedical wastes (BMW) generated during MSU functioning need to be managed as per the requirements of Biomedical waste management rules, 2016 and amendment thereof.

The key provisions that need to be in place under BMW Rules, 2016 include:

- Nodal officer-BMW Management and a team / committee for supervision and monitoring of BMW Management activities.
- Statutory authorization for generation, handling, storage and transfer of BMW from state Pollution Control Board / Committee
- Availability of bins and liners for BMW collection and storage as per the BMW management rules specifications.
- Pre-treatment of liquid and other highly infectious wastes as specified in BMW rules, 2016.
- Provisions for tools for safety of workers e.g., needle hub-cutters, waste collection boxes, availability and usage of disinfectants e.g., Sodium Hypochlorite and alcohol hand rub etc. and promoting safe work practices, including use of PPE.
- Training of workers in field investigation teams and laboratory in occupational health and safety and safe practices in biomedical waste management.
- Regular health check-up of workers involved with biomedical wastes.
- Contractual arrangement with Common Biomedical wastes treatment facility for regular transportation of BMW from the laboratory to the facility for treatment and final disposal.

As required by the BMW rules, 2016, the records of BMW generated and transported for treatment, training records, health examination records, incidents register covering needlestick injuries, minor spills etc and annual report need to be maintained. In addition, a periodic BMW Audit by an independent department / organization to help in monitoring and assuring quality of activities.

16. Integration with Municipal Health Departments

The MSUs should have strong linkages with other municipal health departments. Typically, the health departments in municipalities will have two arms - public health and health service delivery. Some large corporations such as Mumbai also have medical colleges under their direct control.

The public health department takes lead on overall city sanitation, food safety including licensing of food establishments, vector control and registration of vital events. The workforce of the city public health department consisting of public health officers, entomologists, sanitary inspectors, food inspectors and sprayers should be sensitised about their roles and responsibilities under the MSU initiative and receive EIS frontline training in a phased manner.

The health services department will have teaching, civil and ID hospitals as well as laboratories under its domain. In addition, this department also operates the urban health and family welfare centres and health and wellness centres including outreach. Surveillance Information sharing as per IDSP requirements through IHIP portal will be the main responsibility of this department. It will also contribute to the response in providing emergency health services including Rapid Response Teams, in and out- patient care as well as providing technical guidance to containment. The major laboratories attached to larger and ID hospitals in addition to sharing L forms on IHIP should also participate in the antimicrobial resistance reporting.

To ensure effective coordination among different arms of the municipal health department, a formal coordination structure consisting of both arms of the health department should be created and undertake monthly review meetings should be undertaken to discuss outbreaks reported and effectiveness of response and identify and promptly address bottlenecks for the effective implementation of the metropolitan surveillance program. An emergency stock-pile of essential commodities required for responding to an outbreak should also be maintained

17. Strategic Partnerships

COVID-19 pandemic clearly highlighted the need for strong partnership with wide ranging stakeholders in containment of communicable diseases. Such important partners include :

- Private sector,
- Civil society organizations,
- Academia, and members of elected local bodies.

Roles played by different arms of private sector such as healthcare providers in surveillance and response, industry as a part of its corporate social responsibility and media in educating citizens and generating alerts remains important. Most states and cities have constituted expert Task forces to provide technical guidance to local response. Elected representatives of local bodies and civil society organizations play a vital role in community organization during the outbreaks. These stakeholders therefore should ideally be involved as partners early on in city “all hazard planning process” as well as included in the annual tabletop exercises.

18. Performance Benchmarks

Performance benchmarks for metropolitan surveillance units are expected to cover the following domains:

1. Structural requirements including space, hardware, software hosting capacity, network capacity
2. Staffing structure
3. Ability to identify and respond to unusual events
4. Data use
5. Data quality

Table 2 below provides details of benchmarking criteria for MSU

Table 2: Benchmarking criteria for MSU				
Benchmark		Available or Meet standards/ norm		
Domain	Criteria	Fully met (Score 2)	Partially met (Score 1)	Not met (Score 0)
Structure requirements (physical and IT)	Physical space: adequate per guidelines	Per guidelines in term of area r [Minimum 5000 sq feet]	Less than area specified in guidelines (between 3000-5000 sq. feet)	Too small (less than 3000 square feet)
	Back-up power: generator/solar in place	Yes	Planned/ will be available in the next fiscal year	Not planned
	24/7 internet connectivity	24/7 available (Previous week)	Available but not 24/7	Not available
	Internet speed is as per norms (no problem uploading, downloading data)	100 Mbps or more	50 Mbps or more	Less than 50 Mbps
	Computers: As per norms and functional	Adequate	Partially Adequate	Not adequate
	Annual maintenance contracts for trouble shooting in place (IT, Electrical, Generator, Internet, Video conferencing etc.)	(Better to provide a % here) AMC for >80% of core IT components	AMC in place for 50-80% of IT components	In place for <50% of IT components
	System softwares: up to date and functional	Fully up to date	Partially up to date	Not up to date/ out dated

Staffing structure	Staffing as per NCDC norms	More than 80% of core staff in place full time as per norms	50-80% of Core technical staff partially in place or not full time	<50% of Core staff not in place
	Provision for surge staffing	In place	Partially in place	Not available
	Roster of multisector team members with emergency contacts available to provide coordinated response during outbreaks or health emergencies.	In place	Roster is available but does not include multisector teams	Not available
Ability to identify and respond to unusual health events	An emergency response plan with outbreak alert/early warning system is in place	In place	Partially in place/ not fully complete	Not available
	Outbreak alerts generated during past 6 months investigated within 48 hours and reported on IDSP-IHIP	80% or more	50-80%	Under 50%
Data use	MSU will update weekly, monthly and annual disease trends	Available and complete	Available but not complete	Not available
	Geospatial map of the city highlighting outbreak prone areas and vulnerable populations	Available and complete	Available but not complete	Not available
Data quality	% reporting units sharing real time data (daily reporting)	80% or more	50-80%	Under 50%
	Quality of outbreak investigations will be assessed as per NCDC protocols (e.g. line listing of cases and deaths,	Fully complete	Partially complete	Not done

	RRT investigation and DSO verification and information available on IHIP).			
	Detailed reports of outbreak investigations undertaken during past 6 months available	Available and complete	Available but not complete	Not available

Definition of meeting the performance benchmarks. Each benchmark is given a score of 2 (fully achieved); 1 (partially achieved) or 0 (not achieved). For the 17 parameters listed, the highest achievable score will be 34. The following range is proposed to determine achievement of Performance benchmark by each unit: (1) fully met (score of 26 to 34 points); (2) partially met (score of 17-25), (3) not met (score of 0-16).

19. Monitoring and Evaluation

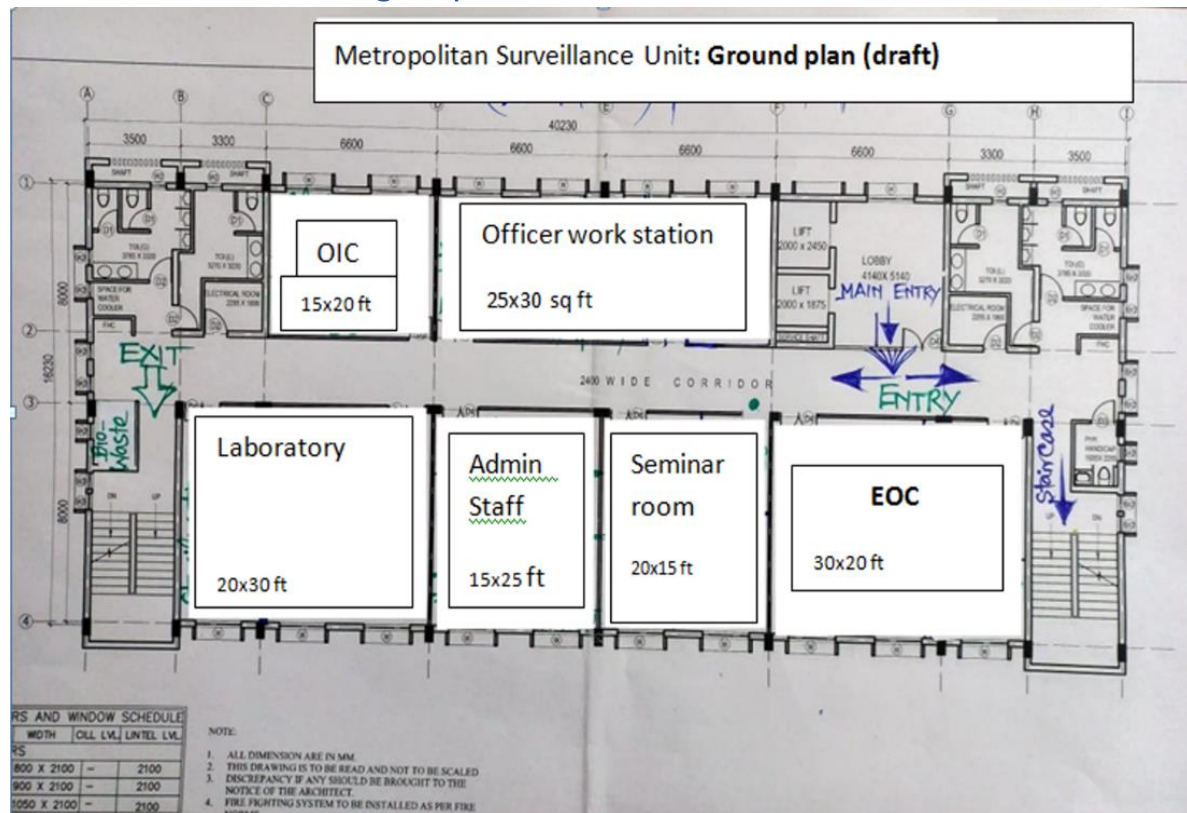
- Monitoring shall be both ongoing as well as periodic and by internal & external monitors.
- The key deliverables of the MSU such as daily reports, weekly reports, alerts generated, outbreaks responded etc shall serve as tools for monitoring the ongoing performance
- Periodic reviews by the Municipal, State and Central government stakeholders (IDSP, NCDC) are also envisaged
- MSU will be monitored against performance benchmarks, which include core indicators that measures each MSU's effectiveness, efficiency and quality.

Annexe

Annexe 1: MSU Locations

Tier I Cities	Tier II Cities
Ahmedabad	Agra
Chennai	Jaipur
Pune	Bhopal
Bengaluru	Nagpur
Delhi	Bhubaneswar
Thane	Shimla
Hyderabad	Chandigarh
Kolkata	Gurugram
Mumbai	Guwahati
Lucknow	Patna

Annexe 2: Indicative design/layout of MSU



Annexe 3: Indicative list of ICT hardware, services & security and infrastructure for MSU

Items	Essential	Preferred	Remarks	
1. ICT hardware, services and security				
1.1 Office equipment	Printer (B&W)	8	10	Multifunction printers preferable
	Printer (Coloured)	2		Laser jet
	Photocopier	1	2	Speed 21-30 Copies per minute, original size: A3, Resolution: 600x600 dpi
	Scanner	2	3	
	Supplies for office equipment (e.g., printer cartridge)			
1.2 Telecommunication equipment and services	Messaging system (e.g., Telephone set)	10	10	
	High speed internet connectivity / lease line			At least 100 Mbps
	Telephone/video conferencing			
	E-mail system/ services			
1.3 Network infrastructure	Internet/ LAN connection nodes	10	30	
	Network devices (switch, router)			
	Wireless network			
1.4 Technological infrastructure	Computer Desktop/ All-in-one computers	10	20	Monitor: wide LCD 19", Intel® core i5(3.6Ghz,6M,1333MHzFSB), 4GB DDR3 Non-ECC SDRAM, 1333MHz, (2DIMM), 500GB 7500RPM 3.5" SATA, 3.0GB/s Hard Drive
	Data storage (physical/virtual)			
	Cable/satellite/internet television			
	GPS devices?			
	Audio system?			
	UPS			
1.5 IT security	Firewall			
	Encryption			
	Anti-virus malware			
	Network data storage/redundancy			
2. Information management software (as needed)				
3. Infrastructure (facilities/security/furniture)				
3.1 Premises support	Dedicated building / space OR multi-purpose space			

	Dedicated room			
	Separate meeting rooms / Conference room			
	Communication equipment room			
	Cloakroom			
	Access to personal hygiene facility			
	Water and food availability & storage			
	Standalone water supply			
	Lighting			
	Main's electricity power supply			
	Backup generator			
	Uninterruptible power system			
	General environment control (AC, ventilation, lighting, etc)			
	Cabling system infrastructure			
	Emergency alarm system			
	Dedicated space for ICT support			
3.2 Furniture	Office chairs	30	60	Revolving chair - half back
	Wooden Computer Tables	30		5x4 ft qty 15, office table for executives qty 5 , medium size qty 5 10x5ft qty 1 conference table
	Visitor chair	10		
	File rack	3		
	Table fan		10	
	Workstations			
3.3 Premises security	Access control			
	Fire protection			