Health Sector Emergency Response Plan

COVID-19

Pandemic

Public health and social measures

Hospital-based interventions

Management and oversight

Government of Nepal
Ministry of Health and Population

May 2020

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1 Background

The first case of COVID-19 was reported from Hubei Province of China on 31 December 2019. Public Health Emergency of International Concern (PHEIC) has been declared on 30 January 2020 and Pandemic on 11 March 2020.Illness caused by coronavirus was termed as COVID-19 by the WHO, which is derived from "coronavirus disease 2019". The name was selected to avoid stigmatizing the virus's origins in terms of populations, geography or animal associations.

In Nepal, the first case was reported on 23 January 2020, a 32-year old Nepali man returning from Wuhan. The patient recovered and contacts were also asymptomatic. Immediate actions were taken to strengthen the health desks at Tribhuvan International Airport and gradually at other airports as well. The ground crossing Points of Entry (PoE) at the Nepal-China border and the Nepal-India border were strengthened with health desks. Traffic limitations are in place on both sides of the borders. The Nepal-China official border crossing points have remained closed since 21 Jan 2020. The Government of Nepal announced suspension of all international flights followed by a country-wide full lockdown since 23 March 2020.

The GoN repatriated 175 Nepalese from six cities across Hubei Province of China on 15 February. They were kept in quarantine in Kharipati, Bhaktapur and no cases were confirmed from within that group. As of 07 May 2020, 14511 RT-PCR rests have been performed and 101 cases have been found to be positive. Among them, 22 cases have been discharged from hospitals.

Sukraraj Infectious and Tropical Disease Hospital (STIDH) in Teku, Kathmandu has been designated by the Government of Nepal (GoN) as the primary hospital along with Patan Hospital and the Armed Police Forces Hospital in the Kathmandu Valley. Recently, all the central hospitals, provincial hospitals, medical colleges, academic institutions and hub-hospitals have been designated to provide treatment care for COVID-19 cases. So far, more than 2000 hospital beds across the country are allocated for isolation of suspected and confirmed cases.

At this stage of operation, the major challenge has been managing quarantine, human resources, limited laboratories for testing and limited stock of medical supplies for the response which includes personal protective equipment and other supplies.

1.1　Goal and objectives

This plan intends to prepare and strengthen the health system response that is capable to minimise the adverse impact of COVID-19 pandemic.

Objectives

- Provide clear policy guidance for timely health system preparedness and readiness to respond to the pandemic.
- Provide a guiding framework for timely, efficient and effective response to the pandemic.
- Provide official guidance to prepare and implement specific interventions applicable at all spheres of governments and level of health care delivery.
- Support policy makers and managers in exploring the options and making the decisions for resource allocation and management.

1.2　Methodology

All COVID-19 related existing national and international policies, strategies, instructions, guidelines and evidences were reviewed while developing this plan. This is a rolling plan to prepare and respond COVID-19 in Nepal. The plan will be further updated based on the evolving scenario. If the burden of disease changes significantly this plan needs to be updated to respond the evolving needs. This plan covers four major dimensions including health systems, public health and social measures, curative care interventions and management and oversight activities to tackle COVID-19 pandemic.

The existing health systems capacity was assessed in terms of availability of beds, ICUs, ventilators and isolation beds, which includes both public and private health service provisions. Based on the current resource availability the possible situations were categorized to four levels to draw inference for planning process. This analysis demonstrates when the existing health systems will start stretching and will be overloaded to manage the active cases.

Based on the above analysis ministry has considered 10,000 active cases to guide the preparedness and response planning. As this plan will be a dynamic, regular assessment of situation and evolving evidences will guide when this plan needs to be updated, mainly new interventions required and budget section. Considering the above-mentioned projected scenario, a policy-based costing exercise was carried out. The costing exercise was based on the existing financial, human resource, supplies, utilities, accommodation, transportation, information management and waste management related data. Resources were mainly taken from existing government financial and

procurement data. Indirect cost like infrastructure and opportunity cost like continuation of existing services are not included[1].

The draft plan was shared to the panel of experts and institutions. Their feedbacks, as appropriate, were included in the respective sections.

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[1] Policy Based Costing to Respond the COVID-19, Dr. Suresh Tiwari, Dr. Guna Nidhi Sharma, Hema Bhatt and Dr. Dadhi Adhikari, March 2020.

2 Scenario for planning

2.1 Current health systems capacity

Table 2.1 shows the current health service provisions to respond COVID-19. The country has 26,930 hospitals beds in public and private hospitals. Likewise, 1595 ICU beds and 840 ventilators are available in 194 hospitals. Recently, MoHP has designated 111 hospitals to run COVID clinics and 28 hospitals to treat COVID-19 cases.

As these facilities, particularly inpatient beds and ventilators, are being used for other conditions or inpatient care services, we assume only one third of it could be available for COVID-19 cases.

Table 2.1: Country capacity

Description	Total (No.)
Hospital beds	26,930
ICU beds	1,595
Ventilators	840
Hospitals with ICU facility	194
Hospitals who run COVID Clinics	111
Level – I COVID Hospitals	13
Level – II COVID Hospitals	12
Level – III COVID Hospitals	3
Isolation beds	3,076

Source: HEOC as of 15 April 2020

Considering the above health systems capacity to manage active COVID-19 cases, this plan envisions four situations (Table 2.2) which will guide response to COVID-19. It is empirical that level I and II can be managed by current health systems capacity. However, health systems will be over stretched from level III and beyond that international humanitarian assistance will be required to manage COVID-19 cases.

Table 2.2: Classification of situation based on current resource availability (health systems case management capacity)

Level	Possible Number of Positive Cases (max)	Maximum no. of person who need general treatment at hospital with isolation wards/beds (80%)	Maximum no. of persons who need hospitalization with Oxygen Support (15%)	Maximum no. of persons who need hospitalization for intensive care Service (5%)
I	0 – 2000	1600	300	100
II	2000 – 5000	4000	750	250
III	5000 - 10,000	8,000	1500	500
IV	> 10000	> 8,000	> 1500	> 500
Note: Based on the scenario, the existing policy/strategy will be amended accordingly.				

2.2   Key management considerations by level

Level I

- Procure and stockpile personal protective equipment, laboratory items, ventilators etc.
- Assessment of designated hospital and ensure basic amenities like water supply, power, sanitation etc.
- Identify, pre-position, train/orient medical personnel, nurses, paramedics and other personnel.
- Ensure adequate production and distribution of oxygen to the designated hospitals
- Establish temporary COVID-19 treatment hospitals where necessary.
- Develop and strengthen public health mechanisms or systems for - contract tracing, case investigation, quarantine, risk communication etc.
- All positive cases will be admitted to COVID-19 designated hospitals unless indicated in the level II/III.

Level II

- Declare Public Health Emergency as per Public Health Service Act 2075 (Clause 48.4) considering the following points:
  - Global emergency and pandemic (Grade III Emergency) as declared by WHO.
  - Global production and supply chain management has been seriously disrupted.
  - Country is heavily dependent on external import of essential health commodities for COVID response.
  - Number of COVID cases in immediate neighboring country is increasing with limited ground crossing control.

- Number of COVID cases are increasing affecting more than two Provinces [Public Health Service Act 2075 (Clause 48.4)].

  Note: It will enable country to mobilize international humanitarian assistance on time and allow the country to get prepared for the next level of scenario.

- All asymptomatic positive cases will be kept in home isolation.

Level III

- Envisage centralization of the COVID cases (moderate and severe) in strategic COVID hospitals.
- All private hospitals will be utilized based on their capacity including human resources.
- Rapid Diagnostic Test (RDT) or other reliable POC molecular testing will be implemented for community screening where applicable.
- Health and hygiene kits designed for distribution to support for those who are in isolation at home.
- Hotels will be used for accommodation and food for the health care workers and support staff engaged in the management of COVID-19 patients maintaining appropriate infection prevention standards.
- Telemedicine services will be provided for delivery of COVID and non-COVID health services, including mass counselling.
- Continuation of the regular health services will be delivered as per the 'COVID and non-COVID health service provision interim guidelines', which will be updated as per the changing scenario.
- All confirmed mild cases will be kept in home isolation.

Level IV

- Declare disaster as per Disaster Risk Reduction and Management Act 2074, Clause 32.1.
- Continue to call international humanitarian assistance according to Disaster Risk Reduction and Management Act 2074, Clause 36.1.
- Continuation of the regular health services will be delivered as per the 'COVID and non-COVID health service provision interim guidelines', which will be updated as per the changing scenario.
- Telemedicine services will be provided for delivery of COVID and non-COVID health services, including mass counselling.
- Adjust Testing, Treatment and IPC Guidelines as per the existing capacity, developing case load and emerging evidence.

3 Strategic approaches and key interventions

3.1 Public health and social measures

3.1.1 Quarantine management

A. **Institutional quarantine:** Adequate institutional quarantine facilities will be arranged by mobilizing available infrastructures such as schools, campuses, hostels, hotels and other accommodating facilities across the country, particularly focusing on Kathmandu valley and bordering districts. Minimum of 14 days quarantine will be made mandatory for the following three target groups:
1. international travellers (air)
2. international travellers (ground)
3. unfeasible home-based quarantine, and those violating home-based quarantine as decided by the local authority.

   Note: further details will be according to quarantine guidelines developed by MoHP.

   Institutional quarantines will be established as per the Government of Nepal's decisions (dated 10 Chaitra 2076) as follows:

Institution		Requirement	Total
Provincial government	7	2000 beds per province	14,000 beds
Metropolitan Cities	6	2000 beds per Metro	12,000 beds
Sub Metropolitan Cities	11	1000 beds per Sub Metro	11,000 beds
Municipalities	276	500-1000 beds/per Municipality	138,000 – 276,000 beds
Rural Municipalities	460	500 beds/per Municipality	230,000 beds
Kathmandu valley	1	3 districts	5000 beds

B. A mechanism will be developed for monitoring of the quarantine management (location, number of quarantines, capacity, occupancy, facilities standards) systems as per the Quarantine Management Guidelines issued by the federal government. The feedback will be collected on different aspects of quarantine management from people who stayed at these facilities to improve the management of quarantine facilities.

C. Compliance of the Quarantine guideline approved by the High-Level Committee on dated 10 Chaitra 2076 will be monitored and ensured, considering the special

needs of vulnerable groups: women and children, pregnant and lactating mothers, elderly, persons with disability.

D. An information dashboard will be developed to remotely monitor daily updates of beneficiaries and services offered from every quarantine facilities.

E. Testing, monitoring, referral and release of the quarantined persons will be done according to the protocols and guidelines approved by the MoHP.

F. **Home quarantine:** Only those meeting the following criteria will be kept at home quarantine for 14 days:
    1. contacts of suspected, probable and confirmed cases
    2. exposed to international travellers (family members and people travelling together with suspected, probable and confirmed cases)

    The federal government will issue detailed guidelines on home-quarantine and disseminate widely.

G. Local teams will be mobilized whilst making efforts to reduce stigmatization of suspected cases or quarantined households to educate, facilitate and follow-up people to comply with the guidelines. The process will be led by the local authorities including health facilities and other stakeholders. FCHVs, other social workers and volunteers will be mobilized where necessary.

H. Quarantine policy (institution and home-based) will be amended based on the evolving scenario.

3.1.2 Community engagement and risk communication

A. NHEICC will develop and / or endorse standardized messages at the federal level, while provinces and local governments will adopt messages in local languages and suitable for the people with disability. Any agency who wants to disseminate communication messages, will only communicate/broadcast standard messages using established coordination platform.

B. Risk communication protocol will be developed considering following key points and widely communicated with all stakeholders:
    ○ *Creative approaches (for e.g. songs, dramas, short videos etc.) without distorting standard key messages.*

- ○ *WHO, MoHP guidelines and peer-reviewed articles/publications should be referenced while developing/communicating messages; feedback from perception surveys and rumour tracking to be used.*
- ○ *Engage to disseminate standard messages and support dispelling myths in the community*
- ○ *Disseminate messages at the PoEs engaging the local authorities and key stakeholders.*

C. Prevention and protection messages will be disseminated at scale using means and media including Call Centres with a focus on reaching vulnerable population groups and addressing stigma and discrimination as well as continuation of appropriate and healthy behaviours and practices (e.g. for pregnant women on danger signs and birth preparedness, breastfeeding, early childcare etc.)

D. Existing public health and community-based networks (public and private local HFs, pharmacies, HWs, FCHV, Mothers Group, etc), community-based organizations, and youth networks will be engaged to disseminate standard information.

E. Other line ministries and development partner networks beyond health will be coordinated to ensure consistency in messaging. Their networks will be engaged to strengthen community ownership and accountability.

F. Communication products by media monitoring and rumour tracking through social media polls, surveys and other methods/tools will be developed and updated.

G. Key community level influencers including local leaders, HWs, FCHV etc. will be identified and engaged to promote healthy behaviours and addressing social cohesion and combatting stigma.

H. Private sector, e.g. tourism/travel, construction industries will be engaged meaningfully for dialogue on specific risks, mitigation, and communication strategies.

I. Effective and one door communication mechanism will be ensured. Each public agency engaged in the response process will designate one spokesperson to deliver authentic information to the public and stakeholders. Public agency includes Ministries, hospitals, local governments and other health facilities.

3.1.3 Case investigation and contact tracing

A. Case investigation and contact tracing teams (CICTTs) will be formed and mobilized at local level with the following key features:
- ○ Composition:
  - ▪ Public health professional (lead)
  - ▪ Health worker (paramedics/nurse)
  - ▪ Laboratory technician/assistant
    Note: Health staffs from NRCS and other partner agencies can be included in the team based on their availability.

- ○ At least five teams in metropolitan city (6 x 5 = 30), three in sub-metropolitan (11 x 3 = 33), two each municipality (276 x 2 = 552) and one in rural municipalities (460 x 1 = 460) will be formed. Total CICTTs= 1075

B. All CICTTs will be trained/oriented to make them ready to deploy. During the response process numbers of the teams will be reconsidered based on the disease burden and geography of the locality.

C. Standard operating procedure for case investigation and contract tracing will be developed and CICTTs should strictly follow the SOP.

D. The CICTT will mobilize Female Community Health Volunteers (FCHVs) for monitoring and follow-up where applicable.

E. The CICTT lead will also perform rapid epidemiological investigations of the clusters and produce analytical report to inform health actions.

F. CICTT teams will work in close coordination with Rapid Response Teams.

G. Necessary resources and protective measures according to level of risk shall be provided to the CICTT and FCHVs as appropriate.

3.1.4 Surveillance

A. Regulations and systems will be developed for shipping of samples for external validation and sharing of genetic sequences and virus materials. Moreover, a sample shipment mechanism will be established up to the nearby laboratories and develop necessary SoPs.

B. Call-center and text-based reporting systems will be established to enable effective event-based surveillance.

C. Communicable disease epidemiological experts will be designated at the federal ministry at Epidemiology and Disease Control Division (EDCD) who will perform rigorous epidemiological analysis of surveillance data and present key findings and recommendations to the incident command system for decision making. National and sub-national capacity on epidemiological analysis will be built.

D. Conduct community based participatory mobility mapping (PMM) to identify priority locations vulnerable to the spread of communicable diseases and other health threats in result of human mobility especially linked with disease outbreaks, where public health resources need to be invested for response to such public health emergencies.

E. Existing early warning and reporting system will be strengthened and case-based COVID-19 surveillance system will be established.

F. Existing forms and formats will be reviewed, updated and/or developed and disseminated widely for wider use.

G. CICTT lead, surveillance officers, medical recorders, statisticians and laboratory personnel will be trained/oriented based on the guidelines.

H. Surveillance systems (Early Warning Reporting System - EWARS and case-based surveillance), contact tracing and laboratory testing will be aligned:
   ○ Severe acute respiratory infections (SARI) cases
   ○ Sample of negative influenza like illness (ILI) cases
   ○ Contacts of positive cases

3.1.5 Screening at point of entries (POE)

A. All PoEs at international airport and ground crossings will be strengthened with dedicated standard health desk equipped with adequate HR and necessary commodities.

B. POE specific standard operating procedures (SOPs) will be developed and disseminated for detection, notification, isolation, management and referrals.

C. Exit and entry screening arrangements will be strengthened for rapid health assessment and referral of symptomatic passengers to designated health facilities

D. Tracking system will be developed and implemented to track people who enter Nepal through PoEs.

E. Public health emergency plans will be updated at point of entry and simulation exercises will be conducted.

F. Immigration and border/port health staff will be train and oriented on screening SOP to manage symptomatic travellers on infection prevention and control.

G. Infrastructure at PoE at ground crossings including the construction of transit isolation room will be improved to manage symptomatic travellers, and the provision of necessary equipment, supplies for screening and transportation facilities.

H. The local governments and other local stakeholders with the community engagement will ensure effective monitoring and management of informal point of entries at ground crossings.

3.1.6   Community level screening and testing

A. Based on the estimates[2], we need to conduct approximately 54,000 tests (estimated) to find out the real situation of positive active cases in the community.

B. MoHP will develop community screening and testing guidelines and protocols and update when necessary; and establish mechanisms for community screening and testing.

C. MoHP will adopt policies based on disease burden and research findings for community using various testing methods for which necessary laboratory networks and biosafety requirements will be mapped and planned for expansion of testing facilities.

D. CICTTs will be deployed to hard hit communities and/or strategic areas for screening and testing.

E. Community level screening and testing will be aligned with surveillance systems.

F. Measures will be taken to ensure that travellers are treated with respect and dignity. Especially in the case of women and people with disabilities.

G. Mobile testing vans will be prepared and mobilized in the high-risk communities.

3.1.7   Emergency response teams

A. Rapid response teams (RRTs) will be trained/oriented and mobilized with necessary logistics, particularly to:

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[2] Assuming approximately 2000 active cases according to the Epi Model done by the University of Oxford and taking R_O at 2.7.

- ○ coordinate response activities at the respective level
- ○ communicate and convene meeting with key stakeholders
- ○ assess critical needs
- ○ develop quick response plan based on the critical needs
- ○ ensure effective supply chain management
- ○ collect information and report to relevant authorities

B. Emergency Medical Deployment Teams (EMDT) will be established in the hub-hospitals and medical colleges and mobilize them as per the need of the provincial and other hospitals.

3.1.8   Other socio-administrative measures

A. Physical distancing at workplace social and cultural gatherings will be extensively promoted. Virtual meetings and sessions will be promoted, where possible.

B. MoHP will provide technical I advice to three levels of governments to adopt and/or lift following socio-administrative measures based on the available information and emerging evidence:
- ○ Universal lockdown
- ○ Conditional lockdown (some essential production activities like agriculture, medicines, medical supplies, daily essential items etc could be allowed but movement will be restricted within production areas. Schools, college (education modality can be virtual if feasible)
- ○ Specific pocket-area lockdown
- ○ Travel restrictions - air and land - international, national and selected areas
- ○ Self-declaration and medical certificate mandatory at point-of-entry

C. The phase-wise lockdown exit and reverse plan will be developed and implemented.

D. The Steering Committee led by Secretary MoHP will advise Governments to impose and/or lift such measures. While recommending such measure the committee will consider:
- ○ Learning from other countries who adopted such measures
- ○ Imposing or lifting such measures will have a profound impact on the health and economy of the country or area, hence, a careful assessment of the situation, transmission rate, morbidity and mortality needs to be considered before advising such measures.

E. During such measures routine essential services will continue and special provisions will be made based on the local need and situation. All critical public health programmes will be continued or adopted as per the **service provision guidelines in COVID pandemic context**. For example but NOT limited to:

- o Safe motherhood services – critical ANC, safe delivery services; critical PNC; management of complicated pregnancies; comprehensive abortion care
- o Management of life and limb threatening emergencies, acute conditions, acute on chronic conditions
- o Immunization - continue sessions with safety measures (physical distancing and using protectives gears)
- o Longer period dispensing for FP commodities, ARV, NCD medicines, mental health medicines, TB and Leprosy drugs, and others as appropriate
- o One stop Crisis Management Centers (OCMC) special attention to providing post-rape management services including access to emergency contraceptive pills and psychosocial support services.
- o Ensure uninterrupted medicines and other supplies

F. Health facilities should adopt appropriate crowd management and triage system.

G. Measures will be taken to minimize hospital visits by people for minor health problems to avoid crowd and reduce over pressure to health facilities. In such cases alternate options like telemedicine and call-center based approaches will be promoted.

H. A mechanism will be developed to monitor continuity of health service and response to other health emergencies like cholera, measles and dengue outbreaks.

3.2   Hospital-based interventions
3.2.1   Hospital care and referral

A. Ministry of Health and Population (MoHP) will designate hospitals for COVID-19 treatment based on the capacity and will further strengthen HR and logistics to manage cases effectively.

B. MoHP will designate hospitals to manage COVID and non-COVID health services as per the 'COVID and non-COVID health service provision guidelines'.

C. Each designated hospital will repurpose their OPD, wards and beds to support treatment of suspected and confirmed cases, and careful consideration will be given to other emergency and critical inpatient services.

D. Private sector will be engaged in COVID response through agreed partnership model guided by MoU.

E. A mechanism will be developed to run telemedicine service targeting the general population, health care providers and expert communities to improve health service delivery in the context of COVID ensuring necessary network connectivity for smooth functioning of telemedicine service.

Table 3.1: Level of care

SN	Level of care	Health facility	Management modality	Human resource
1	Counselling	HP, PHC, Primary Hospital	Counselling and referral to designated COVID hospital.	Doctors, Nurse and Paramedics
2	Screening, testing and referral	District level provincial hospitals, COVID clinics	Isolation and care. Sample collection and transportation to nearby COVID lab. Referral to appropriate COVID hospital, if positive. Testing, observation, monitoring, and symptomatic treatment	Medical Officer, Paramedics, Nurse, Laboratory staff, Supporting staff
3	Mild case management	Level 1 - COVID Hospital	Observation, monitoring, symptomatic treatment and pre-discharge testing. Referral in case of deterioration to higher level designated COVID hospital based on severity.	Medical Officer, Nurse, Paramedics, Laboratory Staff and Supporting staff (1:20, 3 shifts)

SN	Level of care	Health facility	Management modality	Human resource
4	Moderate to severe case management	Level 2 – COVID Hospital	As per COVID-19 Treatment Guideline (Interim clinical guidance for caring patients with COVID-19 in health care settings).	**For moderate cases:** Internal medicine specialist/Chest physician/MDGP/Infectious Disease Specialist (1:10), Nurses (1:6), Supporting staff (1:10) 3 shifts **For severe cases:** Internal medicine specialist/Chest physician/Pulmonologist/ Critical Care Physician (1:4), Critical care nurses/ICU trained nurses (1:2), Supporting staff (1:4) 3 shifts Radio-imagining and Laboratory Staff (Radiologist, Pathologist, Microbiologist, Lab Technicians)
5	Multispecialty services for COVID-19 patient	Level 3 – COVID Hospital	As per COVID-19 Treatment Guideline (Interim clinical guidance for caring patients with COVID-19 in health care settings) **PLUS** other multispecialty service clinical protocols	Internal medicine specialist/Chest physician/MDGP/Infectious Disease Specialist (1:10), Nurses (1:6), Supporting staff (1:10) 3 shifts **PLUS** Sub-specialty team (e.g. surgeon, orthopedic surgeon, ENT surgeon etc.)

3.2.2   Laboratory services and other areas of hospital interventions

A. **Investigations:**
   a. **Laboratory investigations:**
      i. Nepal Public Health Laboratory will collaborate with public and private hospitals and laboratories to establish and strengthen testing capacity based on the need. Moreover, each hospital and laboratory should assess their needs and collaborate with the NPHL. It applies for Covid-19 testing and other investigations according to clinical judgement.

      ii. Internal and external quality assurance mechanisms will be developed and laboratories performing tests should enrol as per the recommendation.

   b. **Radio-imaging and other investigations:** All radio imaging facilities of the hospitals will be utilized for supportive investigations to guide clinical decision for management of the Covid-19 patients.

      Radio imaging facilities of the hospitals will be utilized with adequate infection prevention measures for supportive investigations to guide clinical decision for management of the COVID-19 patients. If possible, dedicate imaging facilities to COVID-19 patients to minimize the risk of the transmission. Where feasible, Artificial Intelligence will be utilized.

B. **Infection prevention and control**
   a. The health care workers and concerned staff must strictly follow the **infection prevention control guideline**.
   b. All health care workers and auxiliary staff will undergo training in correct donning, removal and disposal of the PPE.
   c. Appropriate use of protective gears will be ensured at various levels of care based on risk levels.
   d. The logistics and supply chain management should be managed as recommended in the logistics section.
   e. The gaps in infection prevention and control including WASH in the health facilities will be addressed by the hospital management based on rapid assessment by using the standard tools

C. **Referral mechanism:** COVID-19 Patient Transport Team (PTT) guidelines will be developed and implemented for inter-hospital communication, transfer and escorting.

D. **Accommodation and food:** All health care professionals and support staff engaged in Covid-19 patient management should be kept separately from their family and community. For this following arrangement will be done:

Option 1:   Hospital quarters and canteens

Option 2:   Available hotels will be mapped for accommodation, food, and transportation arrangement. The MoHP will sign a MoU with the designated hotels for the procedures and reimbursement for cost incurred.

E. **WASH in health facilities:** Each designated health facilities to implement WASH plan based on initial assessment   and improve safe WASH services in health facilities to deliver quality health services and protect patients and health workers from further transmission of disease. The facilities will also consider improving handwashing behaviour.

F. **Health care waste management and decontamination**: A designated trained team will be assigned for health care waste management and decontamination for each hospital, public health lab, essential a transport such as Ambulance and quarantine stations. Another trained team will be responsible for waste management and decontamination of quarters, hotels, canteens and vehicles including ambulances. All these activities should be in adherence with **Health Care Waste Management and Decontamination Guidelines.**

G. **Dead body management**: The deceased will be handed to the family and relatives with clear instruction as mentioned in the Dead Body Management Guidelines.

H. **Mental health services and psychosocial counselling:** Mental health services and psychosocial counselling and support will be provided to the patients, families and health care workers through appropriate medium such as group counselling Apps.

4 Management and oversight

Different committees and task teams will be formed for preparedness and response to COVID-19. MoHP will ensure appropriate representation of technical experts (e.g. public health experts, virologist, immunologist, epidemiologist, infectious disease specialist, pulmonologist, emergency medicine specialist, critical care specialist, researchers etc.) in various management and oversight committees to provide technical advice in facilitating evidence informed decision making.

Table 4.1: Federal level oversight structures

SN	Committee/Task Team	Chair	Committees/Members
1	High Level Coordination Committee	Hon'ble Deputy Prime Minister and Minister for Defence	Designated Hon'ble Ministers
2	Corona Crisis Management Centre (CCMC)	Hon'ble Deputy Prime Minister and Minister for Defence	Committees: Operation, Logistics, Media & IT and Security
3	Steering Committee	Secretary of MoHP	Chief Specialists-2, DG, DoHS-1, PPMD Chief-1
4	Incident Command System	Incident Commander-Secretary of MoHP	Operation Officers-5, Planning and Budgeting Officer-4, Admin/Finance Officer-2, Logistic Officer-4, Communication and Coordination Officer-5

Provincial and local governments will establish appropriate management and oversight mechanisms and arrangements based on the existing systems.

4.1 Safety and security of the frontline Staff

A. Ensure adequate availability of personal protective gears as per protocol.

B. Security system at each designated hospital will be strengthened with adequate security personnel. Hospitals will regularly coordinate with local administration offices to make necessary arrangements.

C. CCITT and any other community mobilization and engagement will be coordinated with the local administration and security system.

D. Any stigma and discrimination, violence and any forms of harassment towards health workers engaged in the COVID-19 response process will be monitored and state will take necessary measures to avoid them and in case of occurrence necessary legal actions will be taken with ZERO tolerance to violence.

E. Based on the need assessment of the individual institutions, necessary arrangements will be made to adopt work from home modality to reduce crowd at the health facilities.

F. Mechanism will be established at each health facility to assess health conditions of the staff and risk-risk (or vulnerable group) members will be mobilized to serve secondary functions in the hospitals.

4.2   Human resource management and capacity building

A. Health workers and FCHVs throughout the country will be mapped and listed.

B. Training and capacity development activities will be organized for health workers working for COVID using innovative software/virtual platforms.

C. A roster of the COVID-19 trained human resources will be developed.

D. Different types of health workers and supporting staff required for each province will be estimated based on the scenario.

E. Crash courses appropriate for each level of health workers will be designed and implemented on critical aspects of COVID-19 management by contextualizing globally developed materials by WHO and other competent agencies.

F. A pool of master trainers will be developed and regular training will be provided to develop mass of health workers to respond COVID-19 in collaboration with WHO, UN and other bilateral agencies who have strong experience in responding to such emergencies.

G. Continuous medical education and treatment updates will be ensured with referent world centres, on a regular basis.

H. Standard guidelines will be developed for human resource mobilization and sharing to effectively mobilize human resources including consideration to work life balance and other factors.

I. A benefit package will be developed for the frontline health workers and support staff.

J. A procedure (*Karyabidhi Nirdesika*) will be developed to ensure life and health insurance of the health workers and support staff mobilized for COVID-19 response.

4.3   Logistics and supply chain management

A. Province-wise estimation of the medicine, supplies (with a particular focus on oxygen supply), equipment and infrastructure will be developed based on the scenario and incorporate current epidemiological situations.

B. Scenario-based (level-wise) emergency consolidated and costed procurement plan will be prepared and procurement will be done based on the plan.

C. Timely procurement will be initiated based on the need of the next situation level.

D. Pre-emptive rational stock piling will be pursued for subsequent scenario for example stock pile for Level-III when the situation is at Level-I.

E. Fast track procurement process will be explored for G2G and/or other possible mechanisms.

F. Key stakeholders will be collaborated with for the commodity grants.

G. Local production of PPE, oxygen supply, etc., will be promoted in collaboration with other concerned ministries and stakeholders.

H. Costed supply chain management plan will be prepared and implemented effectively in collaboration with public and private sectors.

I. eLMIS will be customized and used for forecasting and utilization of COVID commodities.

J. Linkage with regular supply systems will be ensured for replenishment and effective use of stockpiles at federal and provincial level.

K. 24/7 internet services will be established and ensured in all health centres and operational sites as particularly during situation level II & III.

L. Adequate supply of necessary PPE and other commodities such as oxygen, blood gas analyser, ventilator, ICU essential drugs and other essential items will be will be estimated as per the WHO guidance "Rational use of PPE for coronavirus disease 2019 (COVID-19)" and ensured through fast track procurement channel and adequate resources

4.4   Collaboration and partnership

A. Collaboration with public, non-governmental, private sectors, development partners, academia and professional societies will be promoted, particularly for:
   ○ Expansion of laboratory services and capacity building
   ○ Logistic supplies, particularly PPE, ventilators, oxygen, laboratory supplies and other supplies
   ○ Supply chain management
   ○ Arrangement and construction, management of quarantine sites where necessary
   ○ Expansion and upgradation of hospital infrastructure (permanent and temporary) for testing and case management
   ○ Community engagement and risk communication
   ○ Establishing communication networks and services (internet etc.)
   ○ Referral services including ambulance services
   ○ WASH at health facilities
   ○ Human resource mobilization and capacity building
   ○ Community based risk mapping
   ○ Research and innovation etc.

B. Collaboration with global agencies, inter-governmental mechanisms and bilateral and multilateral agencies will be promoted to strengthen country capacity in the specific areas outlined in this action plan.

C. MoHP and/or provincial ministries will sign Memorandum of Understanding (MoU) for collaboration with hotels, restaurants/canteen, transportation, private hospitals to provide services based on approved cost reimbursement modality.

4.5   Monitoring, evaluation and reporting

A. An information management unit with a dedicated team and adequate resources will be established under the Incident Command System (HEOC). The composition and number of the team will be assessed by HEOC based on the situation (level).

B. A results framework and plan will be developed for tracking the progress of the health sector response to COVID including evaluation. Each entity engaged in COVID-19 response will collect and provide information as per the results framework.

C. Monitoring of the daily activities, service utilization including that of critical health care services, monitoring and feedback on real time basis will be ensured where possible.

D. Inter-agency data sharing mechanisms will be established at the MoHP.

E. The process of response to COVID-19 will be documented and an evaluation of COVID-19 response performance will be conducted at each level of governance. The lessons learnt from the response at each level will facilitate development of evidence based policies and programmes and ensure adequate budgeting at each level.

F. The following interim key indicators will be used to monitor and evaluate the preparedness and response.
   - Percentage of budget allocated to support COVID-19 response plan
   - Number of tests performed
   - Number of positive cases and daily/weekly trend
   - Per capita cases by province/district
   - Percentage of cases cured among outcome group patient
   - Case fatality rate of confirmed cases by age groups and sex
   - Number of new confirmed cases in healthcare workers
   - Number of referred cases
   - Number of positive cases identified during contract tracing
   - Number of isolation beds available by province/district
   - Number of ICU beds to provide services to the COVID-19 cases
   - Number of people quarantined
   - Number of suspected cases isolated
   - Proportion of positive cases among suspected cases
   - Percentage of laboratories scoring 100% on EQAP

   All regular essential services for other critical programmes will be monitored through the routine programme monitoring framework.
   These indicators will be updated as the results framework gets finalized and when situation evolve and more evidence becomes available.

4.6 Research

- Country capacity and partnerships will be strengthened for COVID-19 specific research focusing on operational research, transmission studies, sero-surveys, clinical trial, validation of tools and technology etc. in collaboration with Nepal Health Research Council (NHRC) and academic and research institutions.

- Operational and implementation priorities will be identified and implemented in consultation with technical experts and in collaboration with NHRC, academia and research institutes.

5 Budget and financial arrangements

5.1 Budget estimation

The required budget for this strategic plan is calculated based on following three major assumptions:

- Maximum 10,000 active cases to be treated and cared
- Strategic costing for public health interventions
- Per-unit costing for hospital-based treatment and care; quarantine arrangements and laboratory tests.

The budget calculation also used per-unit costing exercise performed by the health and economic experts, which was based on the existing financial, human resource, supplies, utilities, accommodation, transportation, information management and waste management related data. Costs are derived mainly taken from existing government financial and procurement data. Fixed cost like infrastructure and opportunity cost like continuation of existing services are not included (Annex 1).

The total budget required to implement this COVID-19 response plan is 6.9 billion. The estimation and analysis show half of the planned budget (50%) will be incurred for the public health and social measures, followed by hospital-based interventions (43%) and management (largely monitoring evaluation and information management), oversight and research activities (4%).

Table 5.1: Estimated budget for COVID-19 response

SN	Area	Estimated budget (NPR ,000)		Total
		Federal	**Provincial/Local**	**Budget**
1	**Public Health and Social Measures**	**631,540.40**	**2,842,021.60**	**3,473,562.00**
1.1	Quarantine management	212,310.00	2,123,100.00	2,335,410.00
1.2	Community engagement and risk communication	10,500.00	225,000.00	235,500.00
1.3	Case investigation and contact tracing	5,000.00	55,000.00	60,000.00
1.4	Surveillance	46,000.00	5,000.00	51,000.00
1.5	Screening at point of entries	10,000.00	111,800.00	121,800.00
1.6	Community level screening and testing	42,530.40	170,121.60	212,652.00
1.7	Emergency response teams	305,200.00	152,000.00	457,200.00
2	**Hospital-based interventions**	**1,125,329.20**	**1,842,661.00**	**2,967,990.20**

2.1	Treatment and care of patient	756,124.00	1,601,875.00	2,357,999.00
2.2	Laboratory services and other areas of hospital interventions	369,205.20	240,786.00	609,991.20
3	**Management, oversight and research**	**175,802.54**	**273,585.14**	**449,387.68**
3.1	Monitoring and HR benefits	66,782.50	129,169.58	195,952.08
3.2	Monitoring, evaluation and information management	59,020.04	144,415.57	203,435.61
3.3	Research	50,000.00	-	50,000.00
	Grand Total	**1,932,672.14**	**4,958,267.74**	**6,890,939.88**

Figure 5.1: Proportion of estimated budget by intervention areas
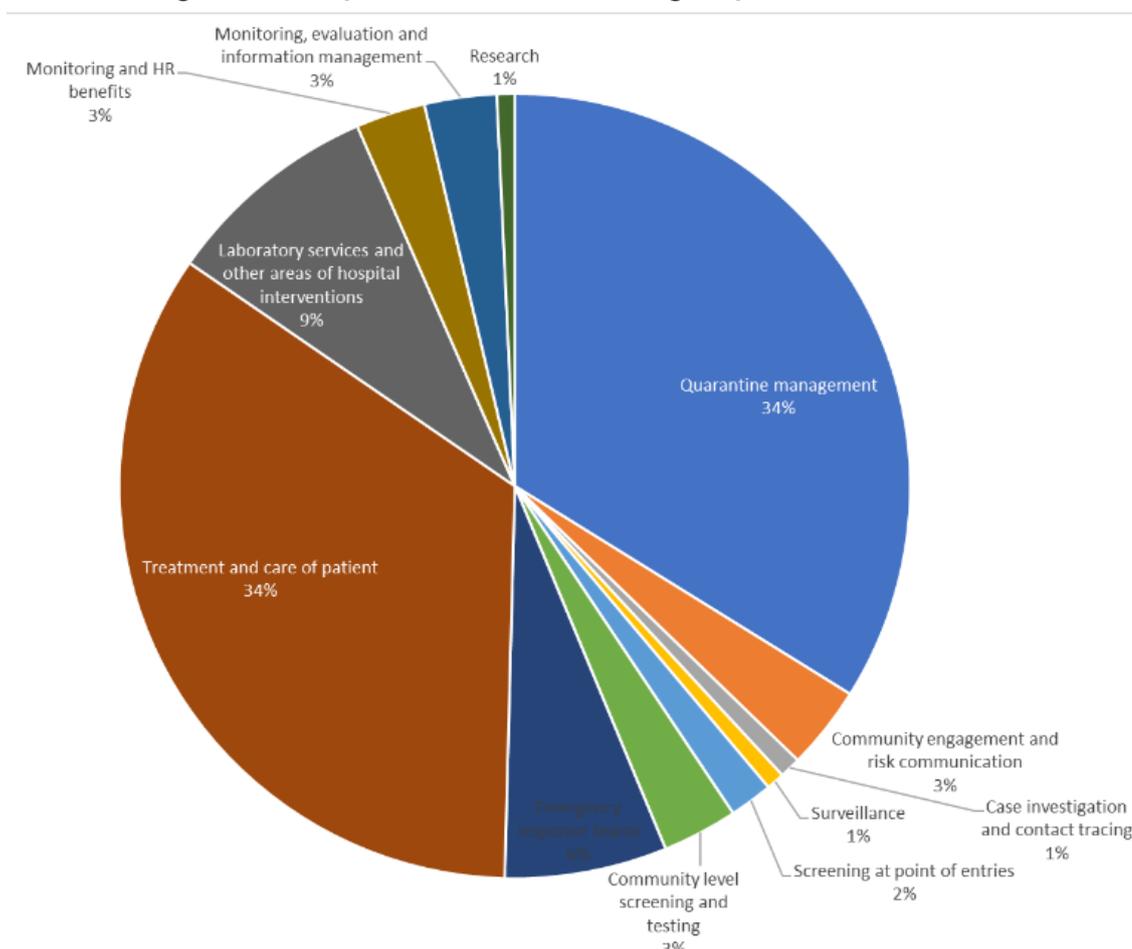
5.2 Financing mechanisms and funding

A. Existing domestic resources will be reprioritized and reallocated the for COVID response.

B. Donor mapping will be conducted for COVID response and channelized for filling the gap where necessary.

C. Global emergency funding support will be explored and a mechanism will be developed for utilization of external donner funding support, e.g. WB – USD 29 million.

D. The required funding to respond the COVID-19 will be provided to designated COVID hospitals and COVID clinics, including private.

E. Case based reimbursement will be provided to the hospitals.

F. The hospitals should keep the record of the expenses following their prevailing financial Acts and Regulations.

G. A clinical audit will be carried out before making the final payment. Following are the process of fund:
   - Annual Work Plan and Budget (AWPB)
   - Coronavirus infection prevention, control and treatment fund
   - SAARC COVID-19 fund
   - Technical and financial support from UN, WB, health sector EDPs and INGOs
   - Budget allocated by provincial and local governments

Annex

Annex 1: References used for budget calculation

The following per unit costs were used while estimating the hospital-based interventions and community-based surveillance and quarantine arrangements, which are referenced from the "Policy Based Costing to Respond the COVID-19" exercise concluded by a team of health and economic experts from Ministry of Health and Population (MoHP), Oxford Policy Management and DFID/Nepal Health Sector Support Programme (DFID/NHSSP) in March 2020.

For treating the diseases in mild condition, the cost per day per person is NPR 14,506, for moderate condition it is NPR 23,993 whereas the severe case requires NPR 38,118. In case of reimbursement done including PPE, it will require NPR 11,219 is to treat a per person per day for mild condition, NPR.19, 083 for moderate case and NPR 31,790 for severe case (calculated separately figure not shown in the table).

Table a: Per person per day cost of treating normal, medium and complicated cases

Case	Per day total	Beside HR	Beside Food	Beside PPE	Beside HR, Food and PPE
Mild	14,506	13,231	12,493	9,339	6,052
Moderate	23,993	20,695	22,380	15,076	10,166
Severe	38,118	32,825	37,083	26,118	19,790

Table b: Estimated per unit cost to undertake community surveillance

Types of cost	Per case per day
Active Case Search in the Community	536
Sample collection from community	1,802
Covid-19 Test	8,918
Monitoring and isolation	5,587
Total	**16,843**

Table c: Estimated per unit cost for setting up quarantine facilities

Types of cost	Per case per day
HR	497
Equipment	95
Food and shelter	2,013
Waste management	120
Information management	8
Transportation	300
Total	**3,033**