Republic of South Sudan

Ministry of Health

National COVID-19 Strategic Preparedness and Response Plan

June 2021 to May 2022

June 2021

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Acknowledgement

This update of the National COVID-19 Strategic Preparedness and Response Plan covers the period from June 2021 to May 2022. It incorporates a major step change in the scale of envisaged activities to address the public health emergency, with total financial requirements estimated at US$ 49,165,087 million. The updated plan has been developed under the auspices of the COVID-19 National Steering Committee (NSC), with analysis and inputs from Ministry of Health experts, State Task Forces (STFs), different technical specialists and members of Technical Working Groups (TWGs) at national and state levels, and from the Small Planning Group that was commissioned to facilitate the work.

The process has brought together numerous representatives of the Ministry of Health, donors, technical partners, non-governmental organizations and United Nations (UN) Agencies. As well as those members of the public who have raised awareness in their communities and homes about how to prevent infection and be prepared for increased local transmission, I would like to thank all the stakeholders that have been involved in COVID-19 Strategic Preparedness and Response plan since April 2021, as well as those involved in this update of the plan and its subsequent implementation, including WHO, Global Fund-CCM, Africa Development Bank, CDC, HPF, IMC, IOM, Ministry of Health, SSRC, UNDP, UNFPA, UNHCR, UNICEF, USAID, WB, WFP, and all other entities and individual that have contributed their time, energy, insights and resources.

I close by availing myself of this opportunity to express my gratitude to the Honorable Dr Elizabeth Acuei Yol, Minister of Health, Republic of South Sudan, for her encouragement and guidance to the national COVID-19 response effort.

Dr Mayen Machut Achiek
Undersecretary of Health

June 2021
Juba, Republic of South Sudan

Executive summery

The South Sudan National COVID-19 Strategic Preparedness and Response Plan (SPRP) was issued at the beginning of June 2021. It described priority activities to be carried out over one year period, June 2021 to May 2022, with a financial requirement of US$ 49,165,087 million. This plan takes into account the rapidly changing context of the global and regional COVID-19 transmission. Its scope was expanded, both in terms of the numbers of potential increase of new infections due to resurgence and emergence of new variants, widespread community transmission as well as development new guidelines with addition of two pillars namely essential health service and health system and vaccination. Its strategies, approaches and activities under the different technical pillars reflect updated guidance. During the development the national COVID-19 SPRP a number of expert organizations reviewed the potential scope of transmission, pointing to potentially large numbers of infections in the months ahead. In parallel, a wide range of technical guidance has been issued or updated, reflecting learning globally, regionally and locally about the situation of the disease and appropriate programming practices.

The SPRP 2021-2022 invited relevant stakeholders and national authorities to update COVID-19 national plans to incorporate lessons learned throughout the implementation of the 2020-2021 National Preparedness and Response Plan (NPRP), and to anticipate and prepare for the challenges of 2021-2022, including the need to prepare all health systems to safely and equitably implement new COVID-19 tools such as vaccines. It is also intended for use by UN Country Teams and key partners to develop or update their 2021-2022 COVID-19 multiagency plans with and in support of national authorities. The SPRP 2021-2022 also described the regional and global technical and operational platforms that will continue to support countries throughout 2021 to implement national action plans, to accelerate equitable access to new COVID-19 tools. The SPRP 2021-2022 provided practical, high-level actions under each of ten preparedness and response pillars that can implemented at national and subnational levels in order to achieve the SPRP six strategic objectives such as: suppress transmission; reduce exposure; counter misinformation and disinformation; protect the vulnerable; reduce death and illness; and accelerate equitable access to new tools, including vaccines, diagnostics and therapeutics.

The plan was updated through a participatory and consultative process. Led by a small planning group commissioned by the National Steering Committee (NSC), the different pillars provided strategic, technical and financial inputs according to identified priorities. The leadership of each pillar comprising a designated representative from the Ministry of Health (MOH), United Nations (UN) organizations and a non-government lead agency (NGOs) in consultation with operational and technical partners through their respective Technical Working Groups (TWGS). A first round of inputs was subjected to inter-pillar peer review, allowing for the extensive review of proposed strategies and requirements and the incorporation of refinements. The draft plan was subsequently presented to different forums, including the National Steering Committee, and respective TWGs prior to its final endorsement.

1. Introduction

1.1 The global and regional epidemiological overview of COVID-19

The Coronavirus disease 2019 (COVID-19) outbreak which was declared a Public Health Emergency of International Concern (PHEIC) on 30th January 2020 and characterized as a pandemic on 11th March 2020, has continued to spread around the world with major health and socio-economic impacts. The number of new COVID-19 cases and deaths continues to decrease, with over 3.5 million new cases and 78 000 new deaths reported globally. Although the number of global cases and deaths continued to decrease for a fifth and fourth consecutive week respectively, case and death incidences remain at high levels and significant increases have been reported in many countries in all regions. The European and South-East Asia Regions reported the largest decline in new cases and deaths in the past week, while case incidence increased in the African and Western Pacific regions. The numbers of cases reported by the Americas and Eastern Mediterranean Regions were similar to those reported in the previous week. An increase in death incidence was reported in the African Region, whereas the Europe and the Eastern Mediterranean Regions reported decreases, and the reported death incidence in the Western Pacific and the Americas Regions was similar to the death incidence in the previous week. Although the number of global cases and deaths continued to decrease for a fifth and fourth consecutive week respectively, case and death incidences remain at high levels and significant increases have been reported in many countries in all regions.

As of 31st May 2021, the global cumulative confirmed cases reported to World Health Organization (WHO) had reached over 169.8 million and over 3.53 million deaths with case fatality ratio (CFR) of 2.1%[1]. Since the first imported case of COVID-19 was reported in the WHO African Region in February 2020, the pandemic has affected, to varying magnitudes, all the 47 countries of the Region, with significant socioeconomic impact. As of 31st May 2021, a cumulative total of over 3.46 million confirmed cases had been reported from the 47 countries in the Region with more than 86,800 deaths (CFR 2.7%)[2]. The evolution of COVID-19 in the region involved an initial slow rise in the number of cases which peaked in July 2020 between epidemiological weeks 29 and 30 followed by a declining trend (Figure 1). However, from mid-October 2020 resurgence was observed in several countries across the continent peaking towards the end of December 2020 and early January 2021. Ten countries accounted for over 88% of new cases while others recorded declining or stable trends.

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[1] Weekly epidemiological update on COVID-19 - 1 June 2021

[2] COVID-19 Pandemic in the African Region Epi situation update as of 30 May 2021

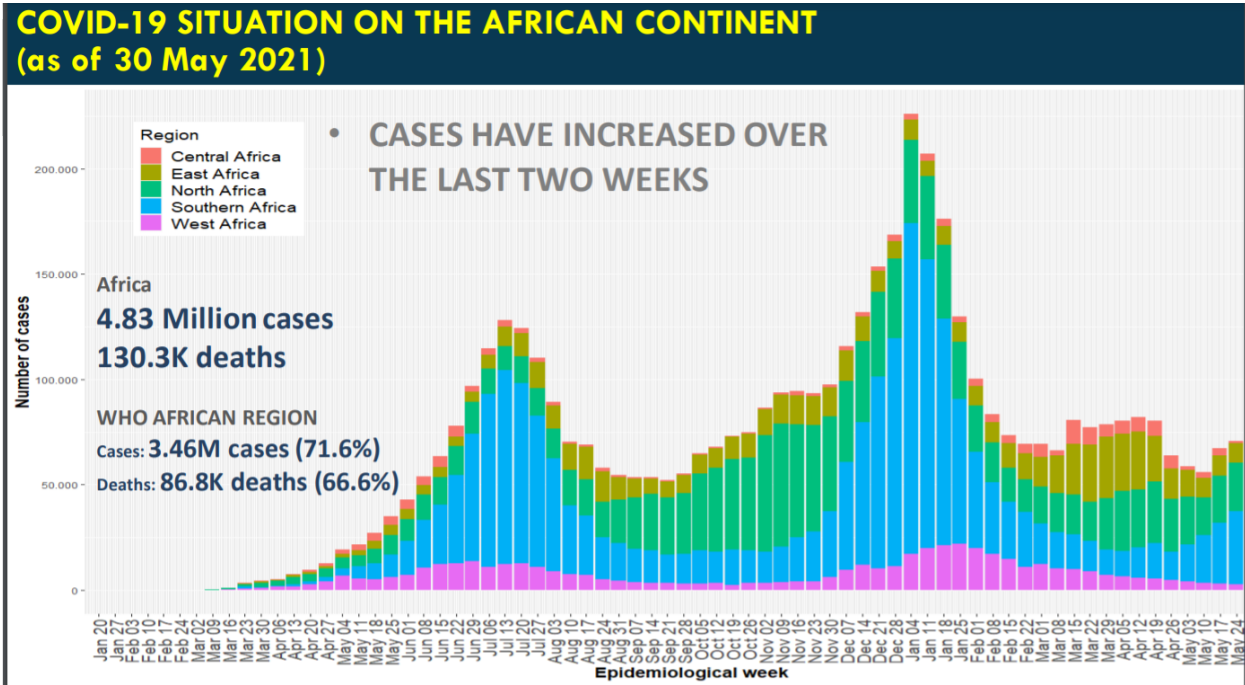**COVID-19 SITUATION ON THE AFRICAN CONTINENT (as of 30 May 2021)**

Figure 1. Trend of COVID-19 in AFRO by week of reporting showing the two peaks

South Sudan confirmed its first COVID-19 case on 5 April 2020. As of 31st May 2021 **10,6798** cases have been confirmed out of tests performed by the National Public Health Laboratory (NPHL) and other decentralized Public Health Laboratories Networks in Nimule, Bor, and Malakal and UN clinics in Juba with 10,514 recoveries and 115 deaths, yielding the CFR of 1.1 percent. South Sudan experienced its first wave from May to July 2020, while the second wave occurred January to April 2021 (Figure 2). The situation was compounded by the humanitarian response targeting over 1 million people affected by floods in different parts of the country which destroyed major infrastructures constraining physical accessibility within already insecure and resource constrained locations constitute major vulnerability for the population. Moreover, 7.5 million people continue to need urgent humanitarian assistance among them 6.48 million severely food insecure and 1.3 million children are malnourished.
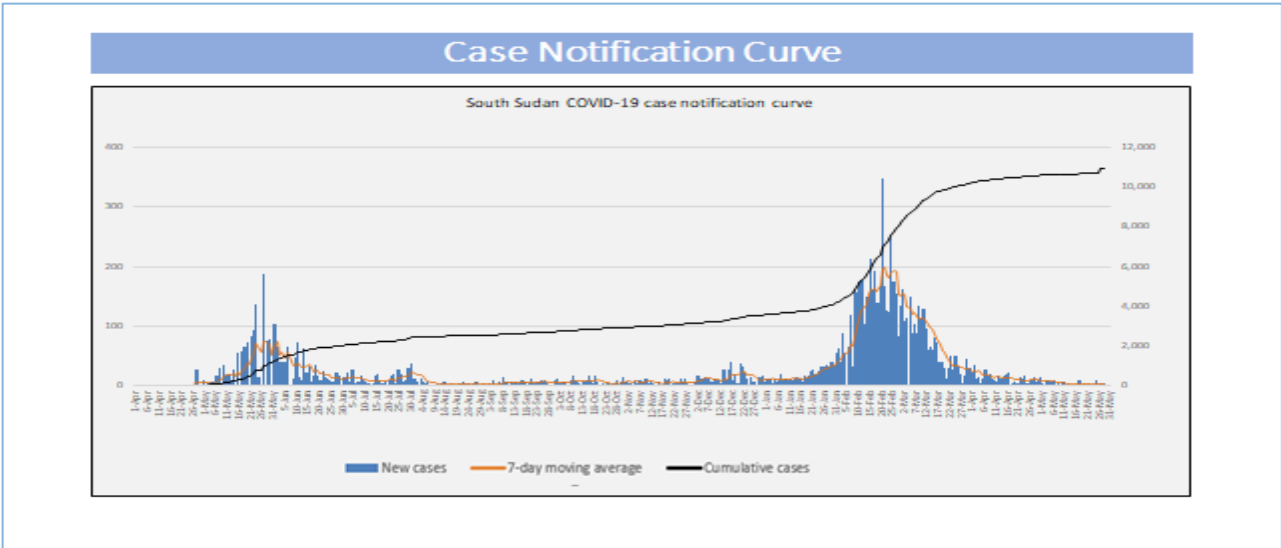

Figure 2. South Sudan COVID-19 weekly situational update

The emergence of new variants of concern presents an additional risk for new waves of transmission. A number of variants of concerns have been documented (B.1.1.7 first identified in the UK in November, B.1.351 first identified in South Africa, B.1.617.2 first identified in India and P.1 in first identified in Brazil), and these have contributed significantly to resurgence in several countries between November 2020 and February 2021. These new variants of concern have displayed biological properties such as increased transmissibility and some have potential for immune evasion, diminished vaccines efficacy (B.1.617.2, B.1.351 and B.1.1.7). Their impact on therapeutics and disease severity and re-infection is still under investigation. Some countries in the Africa region have identified more than one new variant of concern. Most countries are conducting genomic sequencing to identify new variants. Accordingly, genomic sequencing of sample from South Sudan at the Uganda Virus Research Institute (UVRI) revealed A.23.1 and the B.1.525 variants circulating in the country.

2. South Sudan 2020-2021 COVID-19 National Preparedness and Response Plan (Old plan)
In the aftermath of WHO declaration of COVID-19 as a public health emergency of international concern and the subsequent outbreak of COVID-19 in the country, the Ministry of Health (MoH) followed advice to countries to strengthen national preparedness and response capacities and activated the Public Health Emergency Operations Center (PHEOC). A COVID-19 Taskforce was set up to coordinate the process of undertaking a comprehensive COVID-19 assessment and development of an action plan to guide implementation and resource mobilization. The COVID-19 Taskforce consists of the following pillars: coordination and leadership; planning and monitoring; points of entry; risk communication and community engagement; surveillance, rapid response teams and case investigations; laboratory; infection prevention and control; case management, and operations support and logistics. Each of the pillars is led by a Government Technical Officer, supported by a lead partner and other support partners.

The COVID-19 Taskforce currently convenes weekly NSC meeting on Thursday in the PHEOC to review the current situation and progress of preparedness activities. The current priorities are informed by a baseline gap assessment of COVID-19 preparedness capacities, the incident action plan, and the overall COVID-19 country preparedness and response operational plan. Weekly revived epidemiology- surveillance, point of entry, laboratory and case management meeting on every Monday. There are daily briefings at the PHEOC to review daily operations by various response teams (surveillance - RRTs, Call Centre, Watch Desk, Mortality Surveillance, Case Management, Triage and Home-Based Care). This meeting led by the Ministry of Health involves partners supporting the response pillars.

As part of our contribution towards global knowledge of the disease, four studies have been initiated (two studies are ongoing meanwhile two are pending analysis). For the study on the first few cases conducted in Juba, data collection and samples have been completed while analysis is ongoing. The household SARS-CoV-2 sero-prevalence study recruited 2214 participants 1 – 84 years old from 435 households and provided blood samples from August 10 to September 11, 2020. The result revealed 494/2214 (22%) survey samples had higher SARS-Cov-2 antibody titers than any sample collected in 2015; hence, 22% sero-prevalence recorded in Juba country Central Equatorial State.

COVID-19 Case Management/Infection Prevention and Control (IPC) capacity has been enhanced through training of Healthcare workers (HCW) at National and Sub-national level. A total of 386 HCWs were trained at national and sub-national level, contributing to national surge capacity for case management. There is on-going assessment of healthcare facilities/wards dedicated for COVID-19 case management at sub-national level. Current bed capacity has expanded to 347. The country also supported 18 priority COVID-19 isolation health facilities have with an assortment of infection prevention and control supplies including Personal

Protective Equipment (PPE) for an estimated 3,900 health care workers, essential medicines and bio-medical equipment to support management of COVID-19 cases.

The national laboratory network currently has an average capacity of 320 tests per day. This is largely limited by the manual virus Ribonucleic Acid (RNA) extraction procedure which limits overall number of samples available for automated PCR runs and the limited capacity of the decentralized GeneXpert machines. The emergence of new variants of concern presents an additional risk for new waves of transmission; South Sudan with the support from Uganda Virus Research Institute (UVRI) conducted genomic and the result revealed A.23.1 and the B.1.525 variants circulating in the country.

As part of International Health Regulation (IHR) 2005 core-capacities strengthening, WHO installed a thermo scan camera at Juba international airport domestic terminal to strengthen port health. Establishment of 20 sentinel sites in Juba for COVID-19 surveillance in health facilities has been completed alongside ongoing construction of 2 Port health facilities at Juba International Airport and Nimule.

In the absence of wide availability of effective vaccine, countries will continue to experience waves of COVID-19 transmission. The COVID-19 Vaccines Global Access (COVAX) facility was developed to support equitable access to COVID-19 vaccines globally with the aim of targeting 20% coverage in all countries prioritizing high-risk populations by the end of 2021. So far South Sudan has vaccinated over 15,000 individuals were administered one dose health workers. However, there is strong vaccine hesitancy due to misinformation circulating in South Sudan.

Finally, the country has finalized the pillar work plans on transition from the vertical COVID-19 response structure to a more integrated longer-term and sustainable response structure that integrate the response activities to existing routine structures. The National Action Plan for Health Security (NAPHS) the longer-term plan reflected public health emergencies including possible pandemic as one of area of preparedness and response.

3. Rationale to 2021-2022 SPRP
COVID-19 and the measures implemented by the government to stop or slow down widespread infections among the communities caused unprecedented disruptions to essential social services provision including health, education, protection and livelihoods in South Sudan and globally. The SPRP aims to address these challenges by maintaining preparedness and response capacities, and support for, and recovery of, essential services, as well as integrated country level approach to ensure accelerated access to and the introduction of new COVID tools, including diagnostics and therapeutics with a particular focus on vaccines.

The development of SPRP was based on the pre-existing Global Strategic Preparedness and Response Plan (SPRP) guideline, the 2020 Humanitarian Response Plan (HRP) and the priorities identified during the 2020 Intra Action Review (IAR). The new plan incorporated strategies to maintain key response activities under the current SPRP pillars as well as scale up access across vaccines, therapeutics and diagnostics, and Health Systems Connectors. It also aims to maintain essential services and boost access to disrupted services particularly focused on immunization. The plan demonstrate MOH central role in bringing the acute phase of the pandemic to an end, and particularly in the introduction and roll out of a COVID vaccine, as well as introduction of other new COVID tools, whilst providing well targeted support for health systems and essential health services recovery.

4 Objectives

1. **Suppress transmission** through the implementation of effective and evidence-based public health and social measures, and infection prevention and control measures, including detecting and testing suspected cases; investigating clusters of cases; tracing contacts; supported quarantine of contacts; isolating probable and confirmed cases; measures to protect high-risk groups; and vaccination.

2. **Reduce exposure** by enabling communities to adopt risk-reducing behaviors and practice infection prevention and control, including avoiding crowds and maintaining physical distance from others; practicing proper hand hygiene; through the use of masks; and improving indoor ventilation.

3. **Counter misinformation** and disinformation by building resilience through managing the infodemic, communicating with, engaging, and empowering communities, enriching the information eco-system online and offline through high-quality health guidance, and by communicate risk and distilling science in a way that is accessible and appropriate to every community.

4. **Protect the vulnerable** through vaccination, ensuring vaccine deployment readiness in all countries and all populations, by communicating, implementing, and monitoring COVID-19 vaccination campaigns, by engaging health workers, and by building vaccine acceptance and demand based on priority groups, taking into account gender and equity perspectives to leave no one behind.

5. **Reduce mortality and morbidity from all causes** by ensuring that patients with COVID-19 are diagnosed early and given quality care; that health systems can surge to maintain and meet the increasing demand for both COVID-19 care and other essential health services; that core health systems are strengthened; that demand-side barriers to care are addressed; and by ensuring that all priority groups in every country are vaccinated.

6. **Accelerate equitable access to new COVID-19 tools** including vaccines, diagnostics and therapeutics, and support safe and rational allocation and implementation in all countries.

5. Most likely scenario

Emerging and re-emerging pathogens remain a great challenge to public health. A cluster of cases of pneumonia of unknown etiology, in Wuhan City, Hubei Province was reported to WHO on 31st December 2019. Subsequent investigations revealed that the cluster was caused by a novel coronavirus, later named Coronavirus disease 2019 (COVID-19) infection. As of 31st May 2021, the global cumulative confirmed cases reported to WHO had reached over 169.8 million and over 3.53 million deaths with case fatality ratio (CFR) of 2.1%[3]. Since the first imported case of COVID-19 was reported in the WHO African Region (AFRO) in February 2020, the pandemic has affected, to varying magnitudes, all the 47 countries of the Region, with significant socioeconomic impact. As of 31st May 2021, a cumulative total of over 3.46 million confirmed cases had been reported from the 47 countries in the Region with more than 86,800 deaths (CFR 2.7%)[4]. The COVID-19 outbreak in South Sudan added to the country's incessant cycle of humanitarian crisis. The 2021 South Sudan Humanitarian Needs Overview (HNO) identified 8.3 million people, including refugees, in need of humanitarian assistance across the country. This is an 800,000-person increase in absolute numbers from the 7.5 million people in need in 2020. Informed by a rigorous inter-sectorial prioritization process with 1.68 billion funding requirement[5].

The economic impact of the COVID-19 prevention measures, the recent dessert locust infestation, the plummeting oil prices and related food price hikes have recently left some 1.6 million people vulnerable due to their dependence on markets. South Sudan has a very high dependence on revenues from crude oil, accounting

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[3] Weekly epidemiological update on COVID-19 - 1 June 2021

[4] COVID-19 Pandemic in the African Region Epi situation update as of 30 May 2021

[5]https://reliefweb.int/sites/reliefweb.int/files/resources/south_sudan_2021_humanitarian_response_plan_online_light.pdf

for 80 per cent of its budget and 95 per cent of exports. The country is also highly dependent on food imports, aid and remittances. Cautiously optimistic growth assumptions for 2020 are likely to be undermined by the COVID-19 environment as total revenue falls and economic activity slows. Moreover, Inter-communal violence witnessed in 2020 in parts of Eastern and Central Equatorial, Jonglei, Upper Nile, Unity, Warrap and Western Bahr el Ghazal and flooding have caused further suffering to the population. According to the Global Humanitarian Response Plan (GHRP), countries where communities and individual health is already severely challenged by the impact of conflict, displacement, concurrent disease outbreaks and frequent natural disasters like South Sudan, the added burden of COVID-19 is expected to be profound.

COVID-19 has caused unprecedented disruptions to essential social services provision such as health, education, protection and livelihoods globally. In South Sudan, people's access to basic services was very limited already before the outbreak, and COVID-19 related restrictions on movement and service provision have only made things worse. More than half or 56 per cent of the nearly 12 million populations do not have access to primary health care services. Out of approximately 2,300 health facilities, more than 1,300 are non-functional. While children are less affected by COVID-19 directly, they are bearing the brunt of the effects of the pandemic according to COVID-19 Humanitarian Response Plan 2020. About 2 million children were out of school before the global pandemic, and authorities estimate that another 2 million previously enrolled students have now had their learning disrupted due to closure of schools nationwide. Essential immunization services have been interrupted or are of suboptimal coverage, increasing the risk of vaccine-preventable disease outbreaks. Reduced accessibility to health services and disruptions in wider health and food supply chains are likely to result in greater excess mortality than COVID-19 infections alone. Disease surveillance capacities have also been stretched. In the absence of a comprehensive surveillance approach for COVID-19, the current reliance on universal tracking of confirmed cases and deaths presents only a minimum estimate of the true burden of disease.

The most likely scenario adopted to guide the process of updating this National COVID-19 Response Plan was. The following scenarios were developed based on the intra-action review meeting, latest WHO Strategic Preparedness and Response Plan guideline, evolving global, regional and local COVID-19 situation, and South Sudan country context including the humanitarian situation

- South Sudan introduced a series of strict prevention measures including restriction of movements, travel bans, curfews, closures of schools, workplaces, restaurants and bars and sport activities. These measures were subsequently relaxed following the decline in the number of cases between January and March 2021. Hence, there is an ongoing social gatherings, and failure to practice preventive measures such as proper use of mask and hand hygiene.
- South Sudan has a fragile health system with limited or no access to essential health service; the situation possible worsened by the COVID-19 pandemic. The situation is compounded by insecurity and ongoing humanitarian situation.
- The emergence of new variants of concern presents an additional risk for new waves of transmission. This has contributed significantly to resurgence in several countries. These new variants of concern have displayed biological properties such as increased transmissibility and some have potential for immune evasion, diminished vaccines efficacy. Hence, surveillance including regular genomic sequencing very important.
- The COVAX facility was developed to support equitable access to COVID-19 vaccines globally with the aim of targeting 20% coverage in all countries prioritizing high-risk populations by the end of 2021. Hence,

- collaboration and working with international and regional partners are critical to increase access and coverage of vaccination.
- South Sudan has limited surveillance systems and testing capacity which has an impact on early outbreak detection to facilitate timely intervention, limit transmission and save lives. Therefore, implementing robust surveillance, effective testing strategies and robust resurgence planning will help to identify hotspots earlier and respond effectively. WHO Regional Office for Africa (AFRO) has made recommendation to countries to review and revise their current surveillance strategies and to ensure integration of COVID-19 surveillance into their Integrated Disease Surveillance and Response (IDSR) system, preferably that which has been updated to the 3rd Edition.
- Irrespective of COVID-19 related restrictions on cross-border movements, refugees from neighboring countries will continue to arrive in South Sudan as well South Sudanese refugees deciding to return home. Medical screening and related health services will be required at prioritized Points of Entry.
- The impact of the COVID-19 environment will reduce national revenues and depress economic activity, threatening subsistence and putting casual workers and low-income households at risk of greater destitution and facing increased protection risks. In particular, food insecurity will increase, and people's ability to access health and other basic services will decrease.
- Messaging to inform people living in densely populated settings, notably Protection of Civilian (PoC) sites, but also urban areas, refugee camps and other settlements, about the risks of transmission is seen to have limited effect on people's decisions to move voluntarily away from those sites to less congested locations. The impact of an eventual outbreak at these sites on people's preferences or ability to remain or re-locate is uncertain.
- Efforts to enhance the volume and quality of screening at border points of entry through establishment of new screening sites and the introduction of screening protocols will continue. However, in a situation of large scale and widespread transmission within the country, border screening efforts may have limited impact from a prevention or mitigation standpoint.
- There will be a differentiated impact of COVID-19 on men, women, girls and boys across the country. There will be an increase in gender-based violence, and the burden of COVID-19 related care will mainly fall on women and girls.

6. Strategy

The overarching strategy prioritizes prevention and mitigation, with complementary efforts in case management; surveillance and detection; and operational and coordination support. The protection and continuation of other, non-COVID-19 health services is central to the strategy, without which additional mortality from conditions such as malaria and water-borne disease and non-communicable diseases like diabetes and hypertension will exceed that from COVID-19 itself. Consideration of vulnerabilities of certain population groups, including the elderly, women, children, internally displaced, migrants and refugees, cuts across activities under all pillars.

Prevention and mitigation are prioritized through Risk Communications and Community Engagement initiatives to promote the adoption of appropriate behaviors to contain transmission, including safe distancing and good hygienic practices. Messaging also promotes home-based isolation for asymptomatic cases or for those with mild/moderate symptoms, helping to protect the capacity for continuation of non-COVID-19 health services. The work incorporates efforts to reduce stigmatization and address protection concerns and enhances collaboration with other initiatives to contain transmission such as contact tracing and follow up. Prevention and mitigation

are also prioritized through Infection Prevention and Control, including Water, Sanitation and Hygiene (WASH). The strategy encompasses IPC-WASH support to all functional health facilities in the country, mitigating nosocomial transmission and protecting the delivery of non-COVID-19 health services. In addition, IPC-WASH support will reach some 2.8 million people in high-risk communities. Prevention and mitigation also include an important component of point of entry screening and targeted testing of travelers, cross border collaboration, harmonizing information sharing and analysis with neighboring countries to mitigate importation and increase access and coverage of COVID-19 vaccination.

The Case Management strategy encompasses support to safe triage at all functional health facilities in the country, protecting health workers and the continuation of non-COVID-19 services alongside services for COVID-19. For asymptomatic cases, and those with mild or moderate symptoms, the strategy recognizes the very limited capacity for isolation in facilities and instead promotes home isolation. Facility-based support will be provided for severe and critical cases. With possible resurgence and new wave of infection the capacity will be extremely limited and likely to become overwhelmed; however, in the 2020-2021 National Preparedness and Response Plan (NRP) there was renovation of isolation facilities and establishment of COVID-19 wards with a small number of beds in each of the nine state capitals outside of Juba, as well as in seven other prioritized county hospital. In Juba, the capacity of the IDU was also being expanded.

The strategy for surveillance and detection incorporates several components, including the strengthening of community-based and sentinel site surveillance; screening and testing of symptomatic travelers at border Points of Entry; consolidating state-level rapid response teams; expanding contact tracing; and expanding and decentralizing laboratory testing capabilities. In the very early stages of the outbreak, capacities were seen to become quickly overwhelmed, with rapid response and contact tracing teams overstretched in Juba alone, and with a substantial backlog of tests to be conducted in the National Public Health Laboratory in Juba, the country's only place of testing. The strategy recognizes that services will be unable to match the likely extent of the outbreak in the months ahead, but aims to consolidate a minimum, critical level of capacity for surveillance and detection in high-risk locations and amongst high-risk populations. Moreover, in collaboration with laboratory pillar national viral genomic sequencing services will be established to strengthen timely detection of new variants as part of active surveillance and resurgence monitoring.

Screening has been prioritized initially at 16 Points of Entry[6] based on information and mapping of areas with high incoming population flows from outbreak affected areas in neighboring countries; entry points receiving long distance commercial and general traffic, including supply routes; convergence points, that is major urban centers, IDP and refugee camps and camp like settings; entry points with significant links to major populations centers; and areas of diversion of population movement due to border closure (alternative routes). To support the analysis, IOM DTM, UNHCR and REACH combined their flow monitoring data for South Sudan with data on COVID-19 cases from neighboring countries, to identify population inflows at risk of transmission. Incoming movements at 73 flow monitoring border points and internal transport hubs were noted. The analysis highlights the importance of large urban centers, areas of return and cross-border communities linked with affected border areas of neighboring countries. Key areas of destination in South Sudan for surveyed travelers coming from affected areas in neighboring countries are Northern Bahr El Ghazal and Twic, Unity State, the counties

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[6] Counties (locations) are: Renk (Renk), Aweil East (Majok Yinthiou), Rubkona (Pantou), Pariang (Jau), Abeyi (Amiet), Rubkona (bus station), Maban (Elfoj), Maban (Yabous), Maiwut (Pagak), Maiwut (Jekow), Akobo (Akobo), Aweil North (Kiir Adem), Morobo (Kaya), Kapoeta East (Nadapal), Magwi (Nimule), Wau (international airport), Juba (international airport).

bordering Ituri (DRC) and Uganda in Central and Eastern Equatoria between Morobo and Magwi, and the urban areas of Juba, Wau, Bentiu / Rubkona, Aweil and Yei.

Operational and coordination support are enablers that facilitate work in all other technical areas. The strategy for operational support and logistics encompasses the consolidation of logistics services for the movement of COVID-19 related supplies and personnel, as well as the management of South Sudan's engagement with the global COVID-19 supply platform and related supply chain arrangements to minimize the impact of potential shortages of critical supplies and equipment, including PPE. The coordination strategy prioritizes planning, monitoring and information flows to promote alignment and best use of resources across coordination platforms and partners at national and sub-national levels.

The COVAX facility was developed to support equitable access to COVID-19 vaccines globally with the aim of targeting 20% coverage in all countries prioritizing high-risk populations by the end of 2021. So far South Sudan has over 10, 000 health workers. Unfortunately, this global solidarity initiative has been undermined by bilateral deals between manufacturers and countries with high income countries stockpiling supplies far exceeding their immediate needs. By 8 February 2021, approximately 131 million vaccine doses had been distributed globally with 86% supplied to only ten countries and 1% supplied to low-income countries. As outlined, it is highly unlikely that effective vaccines will be rapidly made available across South Sudan. The situation is compounded by high vaccine hesitance due to misinformation. Therefore, implementation of public health and social measures namely physical distancing, wearing of face masks and hand hygiene will continue to be the backbone of response for the foreseeable future. It is therefore critical for all countries within the AFRO region to plan and enhance their readiness and response capacities to manage current and future resurgences.

Expected results and outputs under each pillar have also been prioritized according to four dimensions of impact, feasibility, efficiency and urgency. This analysis gives rise to a guide to inform prioritization of secured funding, given the likelihood that the full financial requirements of the plan may not be met. More details are provided in section Table 13 below, along with a summary of financial requirements.

In the current national SPRP activities are coordinated under 10 pillars, each revolving around one thematic area or technical discipline, as listed in the Table 1 below:

Table 1. List of COVID-19 SPRP pillars

#	COVID-19 Pillar
Pillar 1	Coordination, planning, financing and monitoring
Pillar 2	Risk communication, community engagement and infodemic management
Pillar 3	Surveillance, epidemiological investigation, contact tracing, and adjustment of public, health and social measures
Pillar 4	Points of entry, international travel and transport, mass gatherings and population movement
Pillar 5	Laboratories and diagnostics
Pillar 6	Infection prevention and control and protection of the health workforce
Pillar 7	Case management, clinical operations and therapeutics
Pillar 8	Operational support and logistics, and supply chains
Pillar 9	Strengthening essential health services and system

Pillar 10	Vaccination

6.1 Pillar Strategies

6.1.1 County level Coordination, Planning, Financing and Monitoring

The Country-level Coordination, Planning and Monitoring (CCPM) pillar is led by the Ministry of Health, through the COVID-19 National Steering Committee (NSC) and WHO. Under the Incident Management System (IMS), the PHEOC leads operational coordination, planning, information management and training in collaboration with the other seven pillars (Points of Entry; Case Management; IPC; National Laboratories; Operational Support and Logistics; Surveillance, Rapid Response Teams and Case Investigation; and Risk Communications and Community Engagement). Nevertheless, the 2021-2022 national SPRP developed with additional two pillars namely Strengthening essential health services and system and vaccination. Technical Working Groups for many of the pillars allow for engagement and coordinated action of numerous partners, including UN Agencies, NGOs and other specialist, technical partners. An interagency Protection Reference Group, co-chaired by the Ministry of Gender, Child and Social Welfare, works with and across the pillars to mainstream analysis of protection, and actions to address protection concerns. Day to day operations of the PHEOC is supported by Center for Disease Control (CDC), the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) COVID-19 Secretariat and WHO. Other agencies and / or donors provide financial and material support.

The NSC engages with and advises the COVID-19 National Task Force (NTF) constituted by the Presidency of the Republic. The NTF is chaired by the Vice President in charge of the Service Cluster[7] with participation of the Ministries of Health, Environment and Forestry, Foreign Affairs and International Cooperation, Finance and Planning, Justice and Constitutional Affairs, Trade and Industry, Humanitarian Affairs and Disaster Management, the Secretary General, Bank of South Sudan, Defense Forces, Police, Internal Security, Civil Aviation and South Sudan Medical Doctors' Association. It adopts the previous work of the National COVID-19 High Level Task Force (HLTF), and considers arrangements for testing; isolation, quarantine and treatment facilities; and coordination with relevant health bodies and other partners[8].

Sub-nationally, the NSC engages with State Task Forces (STFs) in each of the ten states, and through those with County Committees[9]. STFs is convened by State Ministers of Health or their delegates, providing a forum for coordination, information sharing and decision making at state level. Subject to partner engagement and coordination requirements, TWGs may exist at state level reflecting the same pillar structure at national level. Alternatively, technical issues may be considered in one common forum.

The pillar is responsible for coordinating the response to the COVID-19 outbreak in South Sudan, promoting alignment of the efforts and resources of different partners to obtain efficiencies and greatest overall effect. The pillar supports development of strategies and plans to attain agreed objectives; monitors progress towards expected outcomes and results; compiles, analyses and disseminates data to inform decision makers and other stakeholders including the NTF on COVID-19 and other government and non-government entities; and promotes operational coordination to ensure streamlined and coherent activities on the ground in line with best practices. Promoting effective linkages and dialogue between national coordination platforms in Juba and sub-national

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[7] Each of the five Vice Presidents sworn in under the Transitional Government of National Unity in February 2020 leads a cluster, in line with Chapter One of the 2018 Revitalised Peace Agreement.
[8] On 18 May 2020 the HLTF was reconstituted by the Presidency, to be denominated as the NTF
[9] At the time of writing STFs are established in all ten States. In two locations, Yambio in WES and Yei in CES, local HLTFs have also been established under the State Governors, mirroring the former national HLTF (recently reconstituted as the NTF). The existence of County Committees has yet to be mapped.

coordination platforms, including at state and county levels, is key. The strategic priorities with corresponding budget listed in Table 2

Table 2.County level Coordination, Planning, Financing and Monitoring Priorities and Budget

Expected Result	Activities	Budget
Incident Management System implemented at national and subnational level. The IMS system played critical role in the coordination of activities in the respective pillar.	Maintain minimal functional IMS structure at the national level and continue to support sub-national coordination in 10 states and three administrative areas using existing platforms to sustain Covid-19 response and to coordinate COVID-19 vaccination activities (not HR)	$ 25,000
The COVID-19 national SPRP integrated into the long-term national Action Plan for Health Security (NAPHS)	Transition strategy and plan: coordination and pillar activities from National Strategic Preparedness and Response Plan (SPRP) to long-term National Action Plan for Health Security (NAPHS)	$ 85,000
National SPRP, and associated work plans and technical guidance are in place, updated periodically to meet evolving circumstances, reflecting agreed strategies and approaches endorsed by key stakeholders including the National Task Force on COVID-19.	Clarification of roles/responsibilities and ToRs for TWGs, NSC (National Steering Committee and (Medical Advisory Panel (MAP)	$ -
	Update the current composition of the National Steering Committee into a multi-sectorial body required for society pandemic preparedness and response	$ -
	Review, print and distribute all SoPs, Guidelines, and protocols	$ 45,140
Contingency plan in place for possible resurgence and new wave of infection	Contingency planning for potential COVID new wave and other infectious disease outbreaks	$ 1,200,000
Joint supportive supervision conducted according to the monitoring and evaluation tools in the national response plan	Conduct National and Sub-National supportive supervision in 10 states and three Administrative areas including Nimule as well as between states	$ 45,344
Intra-action review organized at national level with active participation of state COVID-19 coordination platform	Conduct intra/after action reviews in accordance with IHR (2005) as required	$ 111,000
Training organized and new development shared to state COVID-19 coordination	Organize incident management training in three regions (Greater Equatorial, Bahr El Ghazal, Upper Nile States)	$ 105,000
Simulation exercise organized to review and evaluate the national SPRP. The exercise will include the review of all the 10 pillars	Conduct simulation exercises to examine country response plans and procedures, and reinforce COVID-19 readiness and response capacities as relevant to country context and	$ 61,000

	technical area.	
Financial and in-kind contributions are sufficient and aligned to the requirements and priorities of approved plans including incentive payment	Support watch officers, surveillance officers and other PHEOC MoH staff through monthly incentives payment	$ 324,000
Total		$ 2,001,484

6.1.2 Risk communication, community engagement and infodemic management (RCCE)

Risk communication, community engagement and infodemic management pillar is an integral part of the COVID-19 response, aiming to empower individuals, families and communities to make informed decisions, to bring about positive behavior change, and to build trust in the response through the application of wide-ranging communication approaches and mechanisms. Strategic objectives include timely and accurate dissemination of information on COVID-19 to communities using different media in multiple and simplified languages, including the most vulnerable and disadvantaged; tracking and mitigation of rumors and misinformation related to COVID-19; effective involvement of communities in the response; and regular sharing of information and technical advice between experts, officials and communities.

The pillar provides technical guidance and expertise in the development of country-specific RCCE efforts, coordinates and monitors the implementation of COVID-19 related RCCE activities, focusing its efforts on building trust, increasing awareness and creating social support through community participation and ownership. Key activities include communication and engagement to raise risk perception, addressing stigma and discrimination associated with COVID-19 and positive testing; and promoting self-health care practices (self-hygiene, self-isolation, community care), social/physical distancing and regular and proactive (two-way) communication with at-risk (and/or affected) communities through appropriate channels. The messaging will encourage people to continue to access other essential health services.

Interpersonal communication and community dialogue are appropriate modalities to reach people effectively and at scale in South Sudan, complemented by mass media interventions including radio messages, posters, mobile miking, social media and traditional theatre. In order to adhere to the recommended COVID-19 safety and infection prevention and control guidelines, partners will focus on using electronic and mass media to reduce physical interaction. Training and orientation are conducted remotely using online platforms where possible, with recommended physical distancing mechanisms and a maximum of ten participants to attend any given session in person.

Recognizing that gender norms and pre-existing inequalities disproportionally affect women and girls who are the main caretakers of the household, as well as the elderly and people with disabilities (PWD), who may have limited access to accurate, official information and public service announcements, house-to-house mobilization will continue with recommended physical distancing measures put in place.

Addressing mental health and psychosocial aspects of COVID-19 will also be incorporated into efforts promoting Faith for Positive Change for Children. Community self-help, mobilization and social support are important to foster ownership and control of the COVID-19 response in all sectors, those affected by COVID-19 directly or indirectly and especially children and their caregivers. COVID-19 can be a source of anxiety. Mental health and psychosocial support (MHPSS) will be integrated into the response to ensure the wellbeing of affected populations and reduce stigma and discrimination. Community based MHPSS can enhance RCCE through

preventive and promotional activities as well as training of health workers, community workers, leaders and media groups.

Psychoeducational messages, information, education and communication about psychosocial issues and self-care strategies or stress management will support scalable psychosocial solutions for staff, volunteers, children, adolescents, caregivers and families. Community health workers and other frontline workers (sanitation workers, social workers, delivery of essential services, etc.) have a pivotal role to play in fighting the pandemic and are often the most trusted source of advice. It is important to equip them with advice and interpersonal communication skills to convey accurate messaging, reassure communities and empathize with patients. MHPSS counseling and support services will provide parents with skills to handle their own anxieties and help manage those in their children to create conditions for child and family wellbeing and protection. Table 3 shows strategic priorities and corresponding budget.

Table 3. Risk communication, community engagement and infodemic management Priorities and Budget

Result	Activities	Budget
Promote community engagement, participation and ownership over CoVID-19.	Engage Radio stations including COVID-19 vaccine roll out	$450,000
	Disseminate integrated message on COVID-19 including vaccine roll out	$3,400,000
	Procure of communication equipment and supplies	$540,000
	Procure mobile making/billboards for COVID-19 messaging	$200,000
	Train of community mobilizers/hygiene promoters	$250,000
	Advocacy and sensitization of stakeholders (community leaders, traditional/religious leaders, law enforcement agencies) including vaccine roll out	$280,000
	Streamline IOM's RCCE activity package (including the above, plus: ToT for community-based groups; and Equip water tankers/bicycle vendors/donkey carts with megaphones to enable them to play pre-recorded messages in local languages during their daily routes of water circulation)	$1,420,000
	Roll out the United Nations High Commissioner (UNHCR) unpacked RCCE activities for refugee response	$475,000
Track and mitigate misconceptions and rumors	Manage rumors/misconceptions and concerns on COVID-19 including vaccine roll out	$300,000

related to COVID-19 through regular and proactive communication with at-risk and/or affected communities through appropriate channels	Generate evidences including COVAX roll out-HCW perceptions survey on COVID-19 Vaccine	$60,000
Enhance capacity Development/technical support to MoH	Develop MoH-RCCE database and repository for information storage	$15,000
	Conduct supportive supervision, mentorship, and M&E	$20,000
	Capacity development/coordination of MoH-Health Education Department including at states counterparts	$25,000
COVID-19 related stigma and psychosocial distress addressed	Implement mental health and psychosocial related activities	$1,500,000
	Development and distribution of IEC messages promoting psychosocial wellbeing	
	Training of frontline workers on MHPSS considerations and basic psychosocial skills	
Total		$8,935,000

6.1.3 Surveillance, epidemiological investigation, contact tracing, and adjustment of public, health and social measures

Surveillance objectives will focus on the rapid detection of imported as well as community cases, comprehensive, investigation, contact tracing, monitoring the geographical spread of the virus, transmission intensity, disease trends, characterization of virological features, and the assessment of impacts on healthcare services. Robust COVID-19 surveillance data are essential to calibrate appropriate and proportionate public health measures. Moreover, in collaboration with laboratory pillar national viral genomic sequencing services will be established to strengthen timely detection of new variants as part of active surveillance and resurgence monitoring.

The WHO Interim guidance for COVID-19 Resurgence in the WHO African Region define resurgence as: an increase in new cases of COVID-19 after a period of lower or no transmission for a period of at least two consecutive weeks. This assumes that surveillance and testing are optimal. There are three actionable thresholds that are considered in this guidance. These are resurgence alert threshold, resurgence response threshold and Under Control.

1. **Alert threshold**: The resurgence alert threshold is reached when there is an increase of between 10% and less than 20% increase in the number of confirmed COVID-19 cases using a seven-day moving average.

2. **Response threshold**: The resurgence response threshold is reached when there is an increase of over 20% in the number of new confirmed COVID-19 cases using a seven-day moving average. Rapid intervention is key when this threshold is reached.

3. **Under control**: COVID-19 transmission is considered to be under control when the increase in the new confirmed cases (the seven-day moving average) is less than 10% over a period of two consecutive weeks, or there has been sustained decrease or an epidemiological plateau for two consecutive weeks.[10]

COVID-19 surveillance will be integrated into the existing IDSR system, sentinel site surveillance and district health information system (DHIS2). In line with the proposed integration frontline health workers will be trained on the latest IDST guideline, DHIS COVID-19 module and sentinel site surveillance and reporting. In addition, as parts of long term capacity building the national SPRP included field epidemiology training to 150 MoH health workers across South Sudan. The pillar strategic priorities are included in table 3.

Table 4. Surveillance, epidemiological investigation, contact tracing and adjustment of public, health and social measures priorities and budget

Result	Activities	Budget
Prompt detection and reporting of suspected COVID-19 cases at health facility and community level for possible monitoring of resurgence and emergency of new variants	Strengthen sub-national/community case identification and contact tracing through deployment of Rapid response teams in 10 states and high risk counties (20 border counties and 20 other in-land counties with COVID cases registered by May 2021)	$684,333
	Skills development for county and state M&E and surveillance officers	$621,333
	Surveillance human resource support at national and state level	$302,400
	COVID19 surveillance: Sentinel hospital based and community sero- prevalence	$135,333
	Train the frontline health workers and community health workers in high risk counties on early detection, sample collection, reporting, quarantine of suspect COVID-19 cases	$65,000
	Strengthen community-based surveillance for COVID-19 in 13 high risk counties and three refugee locations – through orientation on case definitions and support to report alerts	$48,333
Identify strengthen, and weakness of the surveillance system and propose corrective measures	Assessments and adaptation of national COVID-19 surveillance	$37,000
Surveillance in refugee setting improved	Integrate refugee camps in the surveillance priorities including community case identification and contact tracing, training of health care workers and CHWs, facility-based sentinel and community sero-prevalence, and strengthen community based surveillance	$92,667
COVID-19 surveillance integrated into long-term IDSR system	Integrate COVID-19 reporting into IDSR and EWARS and establish national capacities for sequencing	$530,000

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[10] Interim guidance for COVID-19 Resurgence in the WHO African Region March 2021

Health worker capacity enhanced in disease surveillance	Field Epidemiology Training for 150 health workers	$621,334
	Total	$3,137,733

6.1.3.1 Indicators for early detection and monitoring of resurgence.

The following seven key indicators should be used for early detection of resurgence and to conduct a more detailed analysis of the COVID-19 resurgence status in a country for the purpose of verification and subsequent monitoring. The indicators will allow decision makers to track COVID-19 trends in specific geographic locations (region/province/district), determine the resurgence situation, monitor the trend and implement appropriate interventions for a given phase.

Indicator (use 7-day moving average)	Description
• Number of new COVID-19 cases per day	• New COVID-19 cases within a geographic region(e.g. province/region/district) • Re-infections should be included here
• Number of COVID-19 Tests / unit population	• Test to positive case ratio of 5:1 • Or more than 10 tests per 10,000 • PCR and Ag RDT tests (specify)
• Positivity rate	• Percentage of positive tests of all tests conducted within a defined geographic area or population subgroup
• Number of active cases	• Number of confirmed COVID-19 cases per 100 000 population that have not met the discharged criteria of the national guidelines • (Active cases= Confirmed cases - COVID deaths- COVID recoveries /discharges)
• Current COVID-19 hospitalization	• Number of COVID-19 patients hospitalized in a given geographic area/ health facility. • Percentage of ICU beds occupied by COVID-19 patients (bed occupancy)
• COVID-19 case fatality ratio (CFR)	• Number of COVID-19 deaths/ Total confirmed cases • Identify the factors associated with fatality and characteristics of those who are dying
• Number of All-cause mortality	• All-cause mortality per 100 000 population (compared to projections)-where vital statistics records are available, • Reported increase in community deaths • Mortality survey results.

Figure 3. Key indicators for tracking resurgence

6.1.4 Points of entry, international travel and transport, mass gatherings and population movement

Points of Entry (PoE) are specialized areas for international and/or local entry or exit of travelers, baggage, cargo, containers, conveyances, goods, and postal parcels into the country, and/or state or any place of convergence. As a landlocked country, South Sudan relies on air and land routes as important lifelines for business, trade and livelihood activities. Movement through local/unofficial routes continues for cross-border communities including refugees and returnees. Given bordering countries with confirmed cases and the challenges of healthcare infrastructure, systems and resources in South Sudan, PoE screening and testing to prevent and mitigate risks of transmission in border communities and the wider country is critical. Accordingly, in the 2020-2021 NRP a total of 16 PoE sites established to provide screening for both international and local travelers who were traveling to and from South Sudan.

The integrated package of services provided by the pillar are interlinked and mutually reinforcing, based on lessons learned and best practices globally as well as experience during EVD preparedness in South Sudan. PoE activities support work undertaken by other pillars. In addition to primary and secondary screening, PoEs are equipped with essential IPC/WASH and RCCE services to ensure travelers, including truck drivers who enter and exit South Sudan regularly to deliver essential food and supplies, can access hand-washing and sanitation facilities to curb transmission. COVID-19 screening, testing, contact tracing and isolation services at border areas also help to contain transmission.

Surveillance at PoEs plays enables systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response as necessary. Effective surveillance allows for timely detection of public health events, exchange of epidemiological information, and the ability to take appropriate public health measures at and around ground crossings. Timely reporting plays an important role for early warning and response systems. Moreover, port health services established at Juba International Airport to enhance screening, detection and reporting. Table 5 below shows the pillar expected result, strategic priorities and corresponding budget.

Table 5. Points of entry, international travel and transport, mass gatherings and population movement priorities and budget

Result	Activities	Budget
Points of Entry surveillance with integrated IPC/WASH RCCE and Protection components are established and maintained	Develop and adjust COVID-19-related public health protocols at points of entry, including for managing acute events, considering the risk mitigation measures adopted and resulting from the risk assessment, as well as for mass gathering events.	$ 96,000.00
	Disseminate regularly COVID-19 related epidemiological information, risk assessment, legal and normative provisions/tools, and protocols.	$ 200,000.00
	Establish PoE surveillance and mechanisms for detection, management and referral of ill travellers at 10 Prioritized PoEs while ensuring the protection of the fundamental rights of travelers and at risk communities including the prevention of gender based violence including establishing mid to longer term comprehensive border health infrastructure and systems at 6 prioritized PoEs.	$ 920,000.00
	Equip and train staff at point of entry in appropriate actions to detect, manage and refer ill passenger(s) and identify their contacts, and to carry out cleaning and disinfection.	$ 982,080.00
	Communicate to travellers and cross border communities information about COVID-19 related entry and exit requirements, prevention, health care, local public health and social measures in place, sanctions for breaching regulations in place.	$ 178,560.00
Risk assessment through continuous population flow monitoring and management are established	Conduct risk assessments and risk analysis for specific settings including mapping of vulnerable populations to guide preparedness for response to COVID-19 in refugee and migrant settings and among other populations of humanitarian concern specifically around ground crossings.	$ 1,224,000.00

Enhance capacity of immigration officers and port health officers	Training, mentorship and capacity building of enforcement and immigration officers at ports of entry including training on responsive policing, respect for fundamental human rights, mitigation of gender based violence, prevention of discrimination and protection of migrants, refugees, returns and other populations of humanitarian concern.	$	192,000.00
Experiences and lessons are recorded at various PoE	Document experience and lessons learned in minimizing transmission of SARS-CoV-2 during international travel for longer term preparedness and response through improved data management systems.	$	204,000.00
Technical support on border health and points of entry is provided	Monitor measures taken by governments and private entities that impact international travel and trade, and assess effectiveness and socioeconomic impact to cross border populations and other populations of humanitarian concern of such measures through qualitative and quantitative surveys and community led research that takes into account gender and human rights considerations.	$	576,030.00
	Develop a National cross border collaboration policy and Strengthen cross border coordination at the national level through country IHR focal points as well as at the community level in coordination with community leaders.	$	176,000.00
Port health facility maintained and functional	Provide operational support to port health in Numule border crossing and Juba International Airport	$	366,000.00
Total		$	5,114,670.00

6.1.5 Laboratories and diagnostics

Laboratory capacity should be prepared to manage large-scale testing for COVID-19 — either domestically, or through arrangements with international reference laboratories. The National Public Health Laboratory (NPHL) currently has an average capacity of 320 tests per day; however, through the decentralization and private testing facility the capacity of testing was enhanced. As of May 31st 2021 a total of 16, 4472 sample were tested at national and state lvel. In the current phase of COVID-19 where there is widespread community transmission, surge plans should be activated to manage the increased volume of samples from suspected cases. WHO provide support to access relevant reference laboratories, protocols, reagents, and supplies. The aim of the laboratory strategy is to sustain, expand and decentralize laboratory capabilities. Testing for SARS-CoV-2 to confirm COVID-19 infection is an integral part of the response as it allows for timely identification of new cases and monitoring the geographic spread of the outbreak. The current national testing guidelines specify the categories of people to be tested for different transmission scenarios, including casting the net wide in the early phase of the outbreak and continuing to increase testing. A testing strategy is developed under the Surveillance, Rapid Response Teams & Case Investigation pillar, including prioritization of different categories of samples where capacity is insufficient to meet overall demand for testing.

Through the recent period of COVID-19 preparedness and response, actions were taken to build national capacities for the detection of multiple pathogens. Testing for COVID-19 can be performed using both PCR and

GeneXpert machines. The National Public Health Laboratory (NPHL) in Juba has one PCR and four GeneXpert machines, while some 17 GeneXpert machines are positioned in state hospitals across the country as part of the national TB and HIV programs but used for COVID-19 testing. Moreover, as parts of enhanced surveillance the genomic sequencing will be integrated in the national COVID-19 testing strategy.

Laboratory management information system (LMIS) is one of bottle link observed during the current SPRP development process. The national public health laboratory with the support from external consultant will establish efficient LMIS both at national and state level. The roles out of the strategy will encompass private COVID-19 testing facilities. The DHIS 2 platform is also an opportunity to integrate the LMIS as a long-term and robust strategy. Table 6 provided priorities and budget to laboratory and diagnostic pillar.

Table 6. Laboratories and diagnostics priorities and budget

Result	Activities	Budget
National and state laboratory testing capacity enhanced	Support the Start of SARS-CoV-2 Genomic Sequencing Laboratory at NPHL	$ 210,000
	Strengthening and expansion of Laboratory Quality Management Systems, External Quality Assurance	$ 306,667
	Laboratory capacity building and system strengthening at the national and subnational level	$ 52,000
	Strengthening Specimen Transport and referral system and Waste Management, and biosafety training	$ 256,667
	Support expand COVID-19 Testing in the community and in all regions of the country	$ 600,000
	Support for Laboratory Human Resources Capacity Building, Trainings, Technical supportive Supervision & mentorship	$ 140,000
	Support scale up of implementation of SARS-CoV-2 Molecular Testing platforms at 10 points of Entry	$ 359,333
	Support expansion of testing laboratory space at the NPHL to enable its made of national quality support, new technology domestication	$ 533,333
Laboratory information management system integrated into long-terms DHIS 2	Support build national laboratory information management system, data flow, and availability, technologies	$ 33,333
Human resource capacity increased	Support to laboratory human resources, incentives	$ 194,400
Total		$ 2,685,733

5.1.6 Infection Prevention and Control

The pillar aims to protect health workers from COVID-19 and prevent health facilities from becoming hotspots for transmission to patients and the wider public by ensuring adequate Infection Prevention and Control (IPC) in health facilities; and to mitigate COVID-19 transmission and reduce the burden of waterborne and other diseases in the community by ensuring adequate access to WASH services in homes, schools and other communal settings such as refugee and IDP. The pillar strategy includes capacity building to the MoH and other partner staff on infection prevention, appropriate waste management and disposal. The priorities and budget are stated in Table 7.

Table 7. Infection prevention and control and protection of the health workforce priorities and budget

Result	Activities	Budget
Enhanced IPC and WASH capacity in the health facilities and communities to respond to COVID-19	IPC supplies for health facilities (procurement of heavy-duty PPE's boots, heavy duty gloves, heavy duty aprons, goggles, and cleaning tools for cleaners and waste manager. And disposable PPE	$ 1,332,180
	Capacity building training to implementing IP's and TOT on water quality surveillance	$ 181,108
	Procure and distribute water candle filters to Nutrition stabilization centers and targeted Primary health care centers with limits access to improve water source	$ 88,000
	Procure and distribute basic water quality monitoring testing kit to partners to enhance self-testing and monitoring of basic water quality parameters, FRC, PH and Turbidity with reagents for testing	$ 60,000
	Procure of reagents for conducting comprehensive water quality test parameters including aluminum analysis in water distributed	$ 80,000
	Establishment of high-temperature incineration at central health facilities manage Properly Gen expert cartridges, cytotoxic, pharmaceutical and hazardous waste	$ 1,695,000
	Procure and distribute color code labeled waste bins and liners to enhance and promote proper waste segregation	$ 103,950
	Design and establish appropriate sanitary facility in COVID-19 Treatment centers and primary healthcare facilities	$ 442,000
	Establish hand washing/ hygiene station which is user friendly all all-inclusive including physical challenge people	$ 287,392
	Enhance the establishment of proper triaging facility and system, equipped to ensure health worker and patient safety with the required PPE and other IPC WASH supplies and consumables	$ 136,237
	Recruit national and international experts to monitor implementation of IPC-WASH activities in health facility and community	$ 287,440
	Enhance the establishment of proper triaging facility and system, equipped to ensure health worker and patient safety with the required PPE and other IPC WASH supplies and consumables	$ 136,237

IPC-WASH assessment conducted	Conduct National WASH in Health Facility base line assessment using the national WASH in health facility score cards adapted from the WASH-FIT and IPC Core component though deployment of trained field WASH/IPC technical officers	$ 375,000
IPC-WASH database established to improve information flow	Establish WASH in healthcare facility data base to enhance routine reporting	$ 60,000
IPC-WASH Workshop and meetings organized to identify best practices, challenges and develop corrective measures	Quarterly stakeholder meetings to evaluate the achievements and gaps, review of work plans reporting implementation IPC status	$ 50,000
	Conduct on job IPC/WASH mentorship to healthcare workers to enhance standardization across all IPs in the technical area of WASH in Health care facilities	$ 181,108
Health workers and other relevant individuals capacity enhanced on waste management through trainings	Conduct capacity building training and TOT to waste managers, cleaners and public health officers on healthcare waste handling, segregation, management, final disposal and incineration	$ 181,108
	Capacity building training to implementing IP's and key MOH Environmental Health Department Staff TOT on water quality surveillance	$ 55,000
	Enhance capacity of MOH Environmental Health Department	$ 86,400
IPC-WASH Guidelines and SoPs are printed and distributed	Develop, print and disseminate step by step practical guide for basic water quality testing handbook	$ 38,000
IPC-WASH services are adequately provided in refugee camps to prevent and/or contain COVID-19 (for more than 300,000 refugees and 111,000 surrounding host populations)	IPC-WASH activities for refugee populations and the surrounding host populations through training, staffing, infrastructure, water supplies and equipment, infection prevention and control items, sanitation and hygiene supplies and equipment	$ 3,425,000
Total		$ 9,281.161

6.1.7 Case management, clinical operations and therapeutics

Experience from other countries shows that very few health systems can cope with the rapid spread of COVID-19. The provision of essential health services has been compromised by the pandemic. Health facilities are receiving high numbers of infected patients, increasing exposure to infection of health care workers, and affecting the capacities of health facilities as they run the risk of turning into infection hotspots. Currently there is no curative treatment for COVID-19. Supportive care is the only viable course of action. Severe or critical COVID-19 cases are ideally supported with IV fluid, supplemental oxygen, ventilators and other sophisticated measures. One of the major strategic priorities for the pillar is increasing the capacity of case management at national and state level by expanding the number of isolation facilities in hospital and health centers. With possible resurgence of new infection as seen in the neighboring countries there will be an increased admission rate in the isolation facilities. See in Table 8 the priorities and budget.

Table 8. Case management, clinical operations and therapeutics priorities and budget

Result	Activities	Budget
Enhanced case management to reduce morbidity and mortality related to COVID-19	Provide incentive for frontline workers in COVID-19 facility (13 COVID-19 facilities +IDU)	$ 751,296
	Arrange salaries for frontline workers in IDU including for the level 2 ICU	$ 1,219,436
	Provide laboratory services for admitted ICU patients at IDU	$ 36,000
	Provide COVID-19 patient feeding	$ 21,780
	COVID-19 infrastructure maintenance	$ 679,200
	Provide refresher training (including critical care training)	$ 33,350
	Conduct supportive supervision	$ 75,920
Enhance frontline health workers knowledge and skill on triage	Provide triage training for frontline healthcare workers	$ 71,010
Community case management improved	Provide transport to mobile team for home based isolation mean of transportation	$ 162,000
	Support community health workers for home based isolation monitoring (Incentive+ PPE+ stationaries) in in in 10 states and 3 administrative areas	$ 879,500
	Ambulances for severe patient transport to the 12 COVID-19 facility	$ 672,000
Total		$ 4,601,492

6.1.8 Operational support and logistics, and supply chains priorities and budget

The Operational Support and Logistics, supply chain Pillar is led by the World Health Organization (WHO) and World Food Programme (WFP) with other focal points engaged on an ad hoc basis. The pillar will use the WFP-led Logistics Cluster coordination structure (bi-monthly meetings, mailing list, etc.) to further relay information and ensure common understanding of logistics-related activities and identifying common challenges and gaps in the COVID-19 response. The Logistics Cluster will continue supporting the humanitarian community in South Sudan with coordination, information management, and common services. Due to the expected scale-up of response, coinciding with the rainy season, the need for logistics services, especially to reach locations inaccessible by road, will likely increase during the COVID-19 response. In addition, the logistic cluster in the current SPRP will take the responsibility of Personal Protective Equipment (PPE), essential medicine and other commodities procurement and international and national level. See below Table 9 the priorities and budgets.

Table 9. Operational support and logistics, and supply chains priorities and budget

Result	Activities	Budget
Transportation human and supplies are available on demand through logistic cluster	Flight cost commodities and human resources	$ 100,000
	Mechanism in place for UNHAS and LC ICWG prioritization in place	$ 2,000,000
Essential goods and supplies made available without shortage at national and state level	Procure COVID medical equipment & Replenishment of fast moving PPE	$ 175,000
	Procure SARS-COV-2 kits 100 patients MODULE DRUGS, general cargo, cold chain	$ 2,300,000
	Procure PPE Core pipeline	$ 3,338,597
	Procure laboratory reagents and consumables	$ 520,000
	Local procurement for consumables	$ 138,750
	Procure Office Supply, equipment & Fittings	$ 60,000
Supply management system improved	Inventory tracking system/Supply end to end system available	$ 401,859
	Provide training on inventory management to key staff (lab, RRT) across the country purposely to enrich their capacity in basic stocks management.	$ 50,000
	Warehouse rehabilitation and new warehouse/core pipeline and decentralization of the common pool	$ 20,000
PHEOC day to day operation maintained throughout the SPRP	PHEOC day to day operation cost (IT, internet, light and other)	$ 410,000
	Transport & Vehicle Rental	$ 78,000

| OSL HR capacity improved | Recruitment of Operation, Supply and Logistic consultant | $ 100,800 |
| Total | | $ 9,693,006 |

6.1.9 Strengthening essential health services and system

Provision of essential health services is a central aspect of the integrated plan to ensure the country is able to support the recovery of and scale up interventions around health services which were disrupted due to COVID-19 and its measures. The NSC will ensure adequate capacity by designating focal points and increased support supervision within the 10 target states and 3 Administrative areas. Besides, health management information system through DHIS 2 is one of the priorities in the SPRP. The priorities and budget are included in Table 10.

Table 10. Strengthening essential health services and system priorities and budget

Result	Activities	Budget
Essential health services and system are available without interruption	Designate a focal point for essential health services as a member of the IMS	$ 30,000
	Develop National Guidelines for continuity of essential health services during outbreaks/emergencies	$ 67,500
	Establish and operationalize of a working group on Strengthening Essential Health Services and Systems in the context of outbreaks/emergencies for coordination	$ 52,560
	Collaborate closely with the State /County level coordination mechanism and determine critical support needed	$ 15,000
	Map the health workforce capacity and redistribute health workforce as needed during the pandemic	$ 11,000
	Provide supportive supervision to ensure continuity of essential health services	$ 110,005
Health management information system improved through the DHIS 2	Strengthen health management information system through DHIS-2	$ 1,500,000
National public health institute established and made functional for the benefit of the public	Establish National Public Health Institute	$ 700,000
		$ 2,486,065

6.1.10 Vaccination

The vaccines readiness and rollout pillar will Accelerate Access to COVID-19 Tools including diagnostics, therapeutics and vaccines through global collaboration and fair allocation and by building vaccine acceptance and preparing for vaccine campaigns in South Sudan. South Sudan currently role out COVID-19 vaccination at national and state level, as of 31st May 2021 11,889 doses are administered; however, there are ongoing vaccine hesitance that requires active community engagement at all level. Table 11 includes priorities and budget related to vaccination role out in South Sudan.

Table 11. Vaccination priorities and budgets

Result	Activities	Budget
Enhance vaccination role out at all level	Coordinate the Development of the National Deployment and Vaccination Plan (NDVP) with relevant bodies in line with WHO guidance and SAGE recommendations	$ -
	Engagement of the National Coordinating Committee (NCC) for COVID-19 vaccine introduction with terms of reference, roles and responsibilities and regular meetings	$ -
	Engagement of the National Technical Working Group (NTWG) for COVID-19 vaccine introduction with terms of reference, roles and responsibilities and regular meetings	$ -
	Ensure the national regulator has clarified the requirements and documents needed for regulatory approvals of COVID-19 vaccines and existence of an expedited import approval/waiver from appropriate authorities	$ -
	Develop training curriculum; Adapt and translate training materials developed by WHO and develop additional training materials as outlined in the training plan	$
	Organize training to vaccination team at national and state level	$ 34798
	Support vaccination team through incentive payment	$ 937200
	Provide vaccine transport through UNHAS and/or commercial means of transport	$ 143,000
	Arrange waste management (fuel for incinerator)	$ 17,000
	Print and distribute forms, registers, tally sheet, training guide, checklist, banners, and posters	$ 83,941
Community misinformation are addressed through community mobilization	Arrange meeting with payam directors, community leaders, council leaders and with communities as form of community mobilization, Internally displaced people (IDP) leaders Meetings	$ 12,805
Total		$ 1,228,744

7. Financial requirements

7.1 Summary

Table 12: Summery table of activities per pillar and requirements

Pillars	Requirement	Secured	Gap
Coordination, planning, financing and monitoring	$ 2,001,484	$ 197,414	$ 1,804,070
Risk communication, community engagement and infodemic management	$ 8,935,000	$ 84,589	$ 8,850,411
Surveillance, epidemiological investigation, contact tracing, and adjustment of public, health and social measures	$ 3,137,733	$ 249,480	$ 2,888,254
Points of entry, international travel and transport, mass gatherings and population movement	$ 5,114,670	$ 84,854	$ 5,029,816
Laboratories and diagnostics	$ 2,685,733	$ 225,354	$ 2,460,380
Infection prevention and control and protection of the health workforce	$ 9,281,160	$ 93,476	$ 9,187,684
Case management, clinical operations and therapeutics	$ 4,601,492	$ 84,589	$ 4,516,903
Operational support and logistics, and supply chains	$ 9,693,006	$ 151,135	$ 9,541,871
Strengthening essential health services and system	$ 2,486,065	$ 130,478	$ 2,355,587
Vaccination	$ 1,228,744	$ 147,117	$ 1,081,627
Total	$49,165,087	$ 1,448,485	$ 47,716,602

7.2 Prioritization of expected result

Given the substantial funding gap and the likelihood that the requirements will not be fully funded, an analysis of the relative prioritization of the different expected results contained in the Plan has been undertaken, in order to provide a general schematic for funding prioritization. This should be considered as general guidance, and it is recognized that actual funding materializes through a series of grant agreements between donors and partners that may also be influenced by other factors including mandates and institutional relationships.

The table below presents a schematic for the allocation of each quartile of requirements funding across each of the expected results in this updated Strategic Preparedness and Response Plan. The 'allocation percentage' was generated through a ranking exercise for each expected result based on four weighted factors: urgency (20 per cent weighting), impact (30 per cent weighting), efficiency (10 per cent weighting) and feasibility (40 per cent weighting). Recent research and evidence were used by subject matter experts to guide the ranking.

Table 13. SPRP result prioritization and budget

Expected Results	Total requirement	Allocation Percentage	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Enhance vaccination role out at all level	$1,215,939	2.5%	$296,418	$296,418	$296,418	$296,418
Community misinformation on COVID-19 vaccine are addressed through community mobilization	$ 12,805	0.03%	$17,891	$17,891	$17,891	-
Promote community engagement, participation and ownership over CoVID-19.	$7,015,000	14.3%	$1,753,750	$1,753,750	$1,753,750	$1,753,750
Contingency plan in place for possible resurgence and new wave of infection	$1,200,000	2.4%	$300,000	$300,000	$300,000	$300,000
Track and mitigate misconceptions and rumors related to COVID-19 through regular and proactive communication with at-risk and/or affected communities through appropriate channels	$360,000	0.7%	$90,000	$90,000	$90,000	$90,000
Enhance the capacity and provide technical support to MoH on RCCE	$60,000	0.1%	$20,000	$20,000	$20,000	-
COVID-19 related stigma and psychosocial distress addressed	$1,500,000	3.1%	$375,000	$375,000	$375,000	$375,000
Prompt detection and reporting of suspected COVID-19 cases at health facility and community level for possible monitoring of resurgence and emergency of new variants	$1,856,732	3.8%	$464,183	$464,183	$464,183	$464,183
Identify strengthen, and weakness of the surveillance system and propose corrective measures	$37,000	0.1%	$37,000	-	-	-
Points of Entry surveillance with integrated IPC/WASH RCCE and Protection	$2,376,640	4.8%	$594,160	$594,160	$594,160	$594,160

components are established and maintained						
Port health facility maintained and functional	$366,000	0.7%	$91,500	$91,500	$91,500	$91,500
Risk assessment through continuous population flow monitoring and management are established	$1,224,000	2.5%	$306,000	$306,000	$306,000	$306,000
Technical support on border health and points of entry is provided	$752,030	1.5%	$188,008	$188,008	$188,008	$188,008
National and state laboratory testing capacity enhanced	$2,458,000	5.0%	$614,500.00	$614,500.00	$614,500.00	$614,500.00
Laboratory information management system integrated into long-terms DHIS 2	$33,333	0.18%	$16,667	$16,667	-	-
Laboratory human resource capacity increased	$194,400	0.4%	$48,600	$48,600	$48,600	$48,600
Incident Management System implemented at national and subnational level. The IMS system played critical role in the coordination of activities in the respective pillar.	$25,000	0.1%	$6,250.00	$6,250.00	$6,250.00	$6,250.00
The COVID-19 national SPRP integrated into the long-term national Action Plan for Health Security (NAPHS)	$85,000	0.2%	$85,000.00	-	-	-
National SPRP , and associated work plans and technical guidance are in place, updated periodically to meet evolving circumstances, reflecting agreed strategies and approaches endorsed by key stakeholders including the National Task Force on COVID-19	$45,140	0.1%	$11,285	$11,285	$11,285	$11,285
Financial and in-kind	$324,000	0.7%	$81,000	$81,000	$81,000	$81,000

contributions are sufficient and aligned to the requirements and priorities of approved plans including incentive payment						
Surveillance in refugee setting improved	$92,667	0.2%	$23,167	$23,167	$23,167	$23,167
COVID-19 surveillance integrated into long-term IDSR system	$530,000	1.1%	$132,500	$132,500	$132,500	$132,500
Health worker capacity enhanced in disease surveillance	$621,334	1.3%	$155,333	$155,333	$155,333	$155,333
Enhanced IPC and WASH capacity in the health facilities and communities to respond to COVID-19 pandemic	$4,829,544	9.8%	$1,207,386	$1,207,386	$1,207,386	$1,207,386
Health workers and other relevant individuals capacity enhanced on waste management through training	$322,508	0.7%	$161,254	$161,254	-	-
IPC-WASH services are adequately provided in refugee camps to prevent and/or contain COVID-19 spread	$3,425,000	7.0%	$856,250	$856,250	$856,250	$856,250
IPC-WASH assessment conducted	$375,000	0.8%	$187,500	$187,500	-	-
IPC-WASH guidelines and SoPs are printed and distributed	$38,000	0.18%	$38,000	-	-	-
Enhanced case management to reduce morbidity and mortality related to COVID-19	$2,816,982	5.7%	$704,246	$704,246	$704,246	$704,246
Enhance frontline health workers knowledge and skill on triage	$71,010	0.1%	$35,505	$35,505		
Community case management improved	$1,784,510	3.6%	$446,128	$446,128	$446,128	$446,128
Essential goods and supplies made available without shortage at national and state level	$6,532,347	12.9%	$1,589,337	$1,589,337	$1,589,337	$1,589,337
Supply management	$471,859	1.0%	$117,965	$117,965	$117,965	$117,965

system improved						
Transportation human and supplies are available on demand through logistic cluster	$2,100,000	4.3%	$525,000	$525,000	$525,000	$525,000
PHEOC day to day operation maintained throughout the SPRP	$488,000	1.0%	$122,000	$122,000	$122,000	$122,000
Essential health services and system are available without interruption	$286,065	0.6%	$71,516	$71,516	$71,516	$71,516
Health management information system improved through the DHIS 2	$1,500,000	3.1%	$375,000	$375,000	$375,000	$375,000
National public health institute established and made functional for the benefit of the public	$700,000	1.4%	$175,000	$175,000	$175,000	$175,000
Training organized and new development shared to state COVID-19 coordination	$105,000	0.2%	$105,000	-	-	-
Joint supportive supervision conducted according to the monitoring and evaluation tools in the national response plan	$45,344	0.1%	$11,336	$11,336	$11,336	$11,336
Enhance capacity of immigration officers and port health officers	$192,000	0.4%	$96,000	$96,000	-	-
Experience and lessons are recorded at various PoE	$204,000	0.4%	$51,000	$51,000	$51,000	$51,000
IPC-WASH workshop and meetings organized to identify best practices, challenges and develop corrective measures	$231,108	0.5%	$57,777	$57,777	$57,777	$57,777
IPC-WASH database established to improve information flow	$60,000	0.1%	$30,000	$30,000	-	-
OSL HR capacity improved	$100,800	0.2%	$25,200	$25,200	$25,200	$25,200
Intra-action review organized at national level with active participation of state COVID-19 coordination	$111,000	0.2%	-		$111,000.00	-

platform						35
Simulation exercise organized to review and evaluate the national SPRP. The exercise will include the review of all the 10 pillars	$61,000	0.1%	-	$30,500	-	$30,500
Grand Total	$ 49,165,087	100%				