COVID-19 Emergency Medical Equipment for Sri Lanka - UN Sri Lanka SDG MPTF - PROGRAMME[1] NARRATIVE REPORT REPORTING PERIOD: FROM *July, 2021* TO *January,2024*

Programme Title & Project Number

- Programme Title: COVID-19 Emergency Medical Equipment for Sri Lanka- UN One SDG Fund
- Programme Number *23201*
- MPTF Office Project Reference Number:[3] *00127950*

Country, Locality(s), Priority Area(s) / Strategic Results[2]

(if applicable)
Country/Region: Sri Lanka

Priority area/ strategic results : Health

Participating Organization(s)

- UNOPS

Implementing Partners

- Ministry of Health, Sri Lanka

Programme/Project Cost (US$)

Total approved budget as per project document: MPTF /JP Contribution[4]: ● *by Agency (if applicable)*	US$ 1,860,000
Agency Contribution ● *by Agency (if applicable)*	*Not Applicable*
Government Contribution *(if applicable)*	*Not Applicable*
Other Contributions (donors) *(if applicable)*	*Not Applicable*
TOTAL:	**US$ 1,860,000**

Programme Duration

Overall Duration *: 30 months*
Start Date:[5] *26 July2021*

Original End Date:[6] *31 December2022*

Actual End date:[7] *31 January 2024*

Have agency(ies) operationally closed the Programme in its(their) system? Yes ☐ No ☒
Expected Financial Closure date:[8]31 August 2024

Programme Assessment/Review/Mid-Term Eval.

Evaluation Completed
☐ Yes ☒No
Evaluation Report - Attached
☐ Yes ☒ No

Report Submitted By

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[1] The term "programme" is used for programmes, joint programmes and projects.
[2] Strategic Results, as formulated in the Strategic UN Planning Framework (e.g. UNDAF) or project document;
[3] The MPTF Office Project Reference Number is the same number as the one on the Notification message. It is also referred to as "Project ID" on the project's factsheet page on the MPTF Office GATEWAY.
[4] The MPTF/JP Contribution is the amount transferred to the Participating UN Organizations – see MPTF Office GATEWAY
[5] The start date is the date of the first transfer of the funds from the MPTF Office as Administrative Agent. Transfer date is available on the MPTF Office GATEWAY
[6] As per approval of the original project document by the relevant decision-making body/Steering Committee.
[7] If there has been an extension, then the revised, approved end date should be reflected here. If there has been no extension approved, then the current end date is the same as the original end date. The end date is the same as the operational closure date which is when all activities for which a Participating Organization is responsible under an approved MPTF / JP have been completed. As per the MOU, agencies are to notify the MPTF Office when a programme completes its operational activities. Please see MPTF Office Closure Guidelines.
[8] Financial Closure requires the return of unspent balances and submission of the Certified Final Financial Statement and Report.

Abbreviations

DGH	District General Hospital
ICU	Intensive Care Unit
LKR	Sri Lankan Rupees
MoH	Ministry of Health
MPTF	Multi Partner Trust Fund
NMRA	National Medicines Regulatory Authority
SDG	Sustainable Development Goals
UN	United Nations
UNOPS	United Nations Office for Project Services
UNSDCF	United Nations Sustainable Development Country Framework
USD	United States Dollar
WHO	World Health Organisation

FINAL PROGRAMME REPORT FORMAT

EXECUTIVE SUMMARY

In response to the COVID-19 pandemic in Sri Lanka, UNOPS, in collaboration with the World Health Organization (WHO) and the Ministry of Health (MoH), took initiatives to enhance the country's capacity for early detection and quality healthcare, to reduce mortality and morbidity, and prepare for future emergencies. UNOPS utilized USD 1,860,000 from the Government of Australia'sSustainable Goals funding instrument via the UN Multi-Partner Trust Fund (MPTF) and procured three genomic sequencing machines, 200 syringe pumps, and constructed and installed three oxygen generation plants.

The construction and installation of oxygen generation plants addressed the critical shortage of oxygen experienced during the pandemic peak and for future needs. By setting up these facilities in key hospitals, including Mullaitivu, Kantale, and Polonnaruwa, UNOPS ensured a seamless oxygen supply, particularly in areas with limited access to refilling of oxygen cylinders. This also means that the hospitals don't have to rely on neighboring provinces or traveling to Colombo, as their needs are fully met. It also eliminates the need for costly private oxygen supply and enables a more self-sufficient and cost-effective operation.

The genomic sequencing machines, procured for the first time in Sri Lanka, strengthened thecountry's epidemiological detection system, enabling rapid response to the mutating virus and improving awareness to mitigate its spread. The long-term impact of procuring these genomic sequencing machines extends far beyond the immediate COVID-19 response. These machines now help Sri Lanka to monitor a wide range of infectious diseases, including influenza, tuberculosis, and emerging viruses. By facilitating the early detection of new strains or mutations, they play a critical role in enhancing public health preparedness and response across the country.

UNOPS also addressed additional needs by procuring 200 syringe pumps, addressing a critical gap in hospital equipment during the COVID-19 pandemic, where precise medication delivery was essential for managing severely ill patients. These pumps enabled the Ministry of Health to equip hospitals with the necessary tools to provide effective treatment, especially in ICUs, ensuring better care for critical COVID-19 cases.

Despite facing challenges such as foreign currency shortages, material scarcity, and logistical issues, UNOPS worked closely with stakeholders to overcome delays and ensure project success. Through dialogue and consultation, UNOPS resolved issues related to stringent procurement standards for the oxygen generation plants, facilitating achievement of the project objectives. The project's success resulted from the strong collaborative partnership between UNOPS and WHO, as well as the close relationship UNOPS maintains with the Ministry of Health.

I. Purpose

Following the initial emergence of the Coronavirus and its global spread, the World Health Organization (WHO) declared a COVID-19 global pandemic. With over 182 million confirmed cases and nearly four million deaths across 218 countries, the pandemic caused immense pressure onhealth systems worldwide. The rapid spread of COVID-19 created an urgent need for medical supplies and equipment. Health systems were overwhelmed, necessitating the establishment oftemporary health infrastructure and the urgent equipping of hospitals with essential protective and supportive equipment.

In response to the rising number of cases in Sri Lanka, UNOPS, in partnership with WHO and under the leadership of the UN Resident Coordinator, enhanced the Government of Australia's support for the COVID-19 response and future emergency preparedness. The proposal built on the Sri Lanka Preparedness and Response Plan 2021, the UN Socio-Economic Advisory Paper (Health Pillar), UN Results Group Work Plan and the technical competencies and comparative advantage of WHO and UNOPS.

II. Assessment of Programme Results

i) Narrative reporting on results:

UNOPS, in collaboration with the WHO and in close coordination with the MoH, prepared and finalized the specifications for Oxygen Generator Plants, Genomic Sequencing Machines, related laboratory items (including laptop computers and peripherals), and syringe pumps.

Following UNOPS' standard procurement procedures, Genomic Sequencing machines, peripherals, and laboratory items were purchased and delivered to the MoH by the end of November 2021. Additionally, 200 units of syringe pumps were procured in September 2022 using budget savings and handed over to the MoH by 31 December 2022.

Throughout the procurement process for the oxygen plants, UNOPS rigorously adhered to the quality assurance protocol to ensure the selected supplier met the highest standards stipulated by the MoH, with a continuous oxygen capacity of 95%. Following approval by the National Medicines Regulatory Authority (NMRA), the procurement was finalized, and the items arrived in Sri Lanka by the end of July 2022. The construction of the plant rooms was completed in 2022, with the Kantale and Mullaitivu plants being commissioned that same year, followed bythe Polonnaruwa plant in 2023.

- **Outcomes:**

The project significantly improved the procurement and logistics capacity in Sri Lanka's health system, in response to the COVID-19 pandemic, particularly in terms of diagnosis and treatment.

Impact of Oxygen Plant Construction, procurement and installation and Genomic Sequencing Machines Procurement

The installation of oxygen plants at Kantale base Hospital, Mullaitivu District Hospital, and Polonnaruwa District Hospital significantly enhanced the quality of local healthcare. UNOPS also established the piping connections from the oxygen plants to the internal oxygen piping systems in all three hospitals, thereby enhancing access to oxygen throughout the facilities. This initiative now enables hospitals in these provinces to access oxygen without relying on neighboring provinces or traveling to Colombo, as was previously necessary. Also, these three plants now produce sufficient oxygen to meet the hospitals' internal requirements, reducing their reliance on costly private oxygen supply and enabling a more self-sufficient and cost-effective operation.

★ **Kantale Base Hospital**[9] now supplies oxygen to critical units, including the Intensive Care Unit (ICU), Neonatal Unit, Operation Theatre and Medical Ward through direct pipelines. In addition to the direct supply, the oxygen is supplied to other patient wards within the hospital by cylinders. The oxygen plant is used to fill around 20 jumbo cylinders daily for this

[9] Information by Chief Pharmacist, Mr W M Manjula Karunarathna of Kantale Base Hospital

purpose. The hospital also has an older, smaller-capacity oxygen plant that has been in operation for about 12 years. With the new plant in place, the hospital plans to relocate the older unit to a smaller hospital within the district to extend its service.

★ **Mullaitivu District General Hospital**[10] currently supplies oxygen to its Operation Theatre and wards, filling around 20 jumbo and 20 medium-sized cylinders daily. Additionally, the hospital provides oxygen to six base and divisional hospitals within the Mullaitivu district, with occasional support extended to neighboring district hospitals, such as Kilinochchi District Hospital, Vavuniya District Hospital and Point Pedro Base Hospital of Jaffna District. The new oxygen plant has reduced the hospital's monthly oxygen procurement cost of approximately LKR 200,000 (670 USD) and now supports peripheral hospitals free of charge.

★ **Polonnaruwa District Hospital**[11] previously spent around LKR 1.8 million (USD 6,000) monthly on liquid and compressed oxygen. Since the installation of the new oxygen plant, the hospital has reduced the oxygen procurement by half. They now produce compressed oxygen in-house, supplying approximately ten (10) jumbo and 15 medium-sized cylinders daily. As the new plant is operating well, the hospital now is planning to fully transition from liquid oxygen to the new plant's output, further reducing the expenses. This hospital also further supports other regional hospitals, such as National Nephrology Hospital of Habarana, with weekly oxygen supplies.

The procurement of genomic sequencing machines, the first of their kind in Sri Lanka, has significantly strengthened Sri Lanka's capacity to manage and respond to the COVID-19 pandemic. These machines have equipped the MoH with a critical need to inform public health strategies, by enabling the identification of different viral strains across the country.

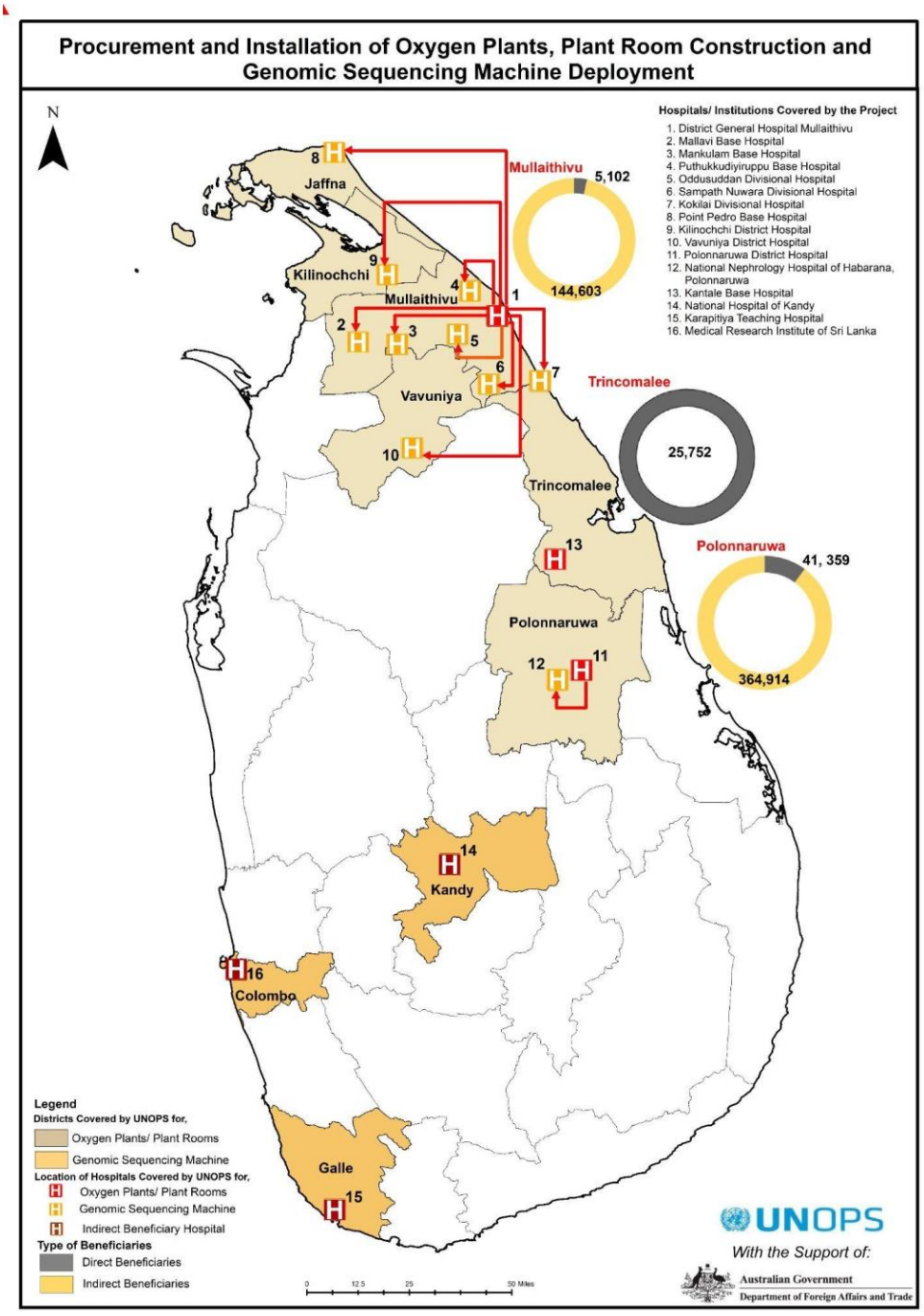
By installing these newly procured genomic sequencing machines at the National Hospital of Kandy, Karapitiya Teaching Hospital, and the Medical Research Institute, the project introduced this capability to Sri Lanka for the first time. This new addition extended testing beyond Colombo, allowing for faster and more localized detection of viral mutations. It also reduced both the time and costs associated with sending samples to Colombo, ensuring quicker responses across the districts. The entire population of 22 million Sri Lankans now benefits from this enhanced testing capacity, enabling more effective communication of risks and targeted prevention efforts, especially against highly transmissible variants.

The long-term impact of procuring these genomic sequencing machines extends far beyond the immediate COVID-19 response. These machines now help Sri Lanka to monitor a wide range of infectious diseases, including influenza, tuberculosis, and emerging viruses. By facilitating the early detection of new strains or mutations, they play a critical role in enhancing public health preparedness and response across the country.

The procurement of 100 syringe pumps addressed a critical gap in hospital equipment during the COVID-19 pandemic, where precise medication delivery was essential for managing severely ill patients. These pumps enabled the Ministry of Health to equip hospitals with the necessary tools to provide effective treatment, especially in ICUs, ensuring better care for critical COVID-19 cases.

[10] Information by Chief Pharmacist, Ms Rathinalini Ariyarathinam
[11] Information by Medical Pharmacist who is incharge of the oxygen plant, Mr B M N M K Munasinghe

Figure 1: Procurement and Installation of Oxygen Plants, Plant Room Construction and Genomic Sequencing Machine Deployment



Beneficiaries

The beneficiaries of this project are broad and include the entire country. The genomic sequencing machines, strategically placed in the key laboratories across Sri Lanka, serve not only the districts where they are located but also support peripheral regions, ensuring that all areas have access to critical diagnostic capabilities. The nationwide benefit enhances the overall health security of the population by enabling timely detection and response to viral mutations.

For the oxygen plants, the primary beneficiaries are the health institutions and patients in the districts of Kantale, Mullaitivu, and Polonnaruwa and the peripherals. The availability of internally produced

oxygen has significantly improved the quality of care, allowing hospitals to meet their oxygen needs independently, reducing reliance on external suppliers, and ensuring a continuous supply for critical treatments. This has significantly improved patient care as patients no longer need to make long trips to other hospitals for critical oxygen-dependent treatments, which has reduced the burden of travel costs, especially during the current economic challenges. This ensures they can receive necessary care closer to home while hospitals benefit from lower expenses related to oxygen procurement and delivery. Similarly, the hospitals can now reinvest the savings generated into other essential requirements in the hospitals, further enhancing their capacity to deliver quality care.

Alignment with Strategic Frameworks and National Priorities

This project directly supported Outcome 1—Strengthened, Resilient & Equitable Social Service Systems and Enhanced Well-Being—under the strategic priority of "Inclusive and Equitable Human Development and Well-Being" within the United Nations Sustainable Development Cooperation Framework (UNSDCF) of Sri Lanka. By enhancing the capacity of the Sri Lankan health system to respond to COVID-19, the project contributed to building resilient and equitable healthcare services across the country.

Aligned with the COVID-19 Sri Lanka Strategic Preparedness & Response Plan 2021,[12] the national plan developed during the pandemic, the project specifically addressed priority 2.2.8: Operational Support and Logistics, and Supply Chains. It strengthened operational support and logistics, ensuring a reliable supply chain for essential medical equipment, including oxygen plants and genomic sequencing machines, which were critical in managing the pandemic's impact.

Furthermore, this project significantly contributed to the United Nations Sustainable Development Goals (SDGs). It supported SDG 3 on Good Health and Well-Being, particularly Target 3.3 on combating communicable diseases by enhancing the healthcare system's ability to detect and respond to COVID-19 and other infectious diseases. Additionally, the efficient use of public resources in this procurement project aligns with SDG 16 on Peace, Justice, and Strong Institutions, promoting transparent and effective institutions that are essential for sustainable development.

- **Outputs:**

In November 2021, UNOPS successfully completed the procurement and handover of three Genomic Sequencing Machines and peripheral equipment to the Ministry of Health (MoH), exceeding the initial target of two machines. A thorough market assessment indicated that the initially allocated budget could support an additional machine, allowing UNOPS to procure and deliver three in total. This additional machine significantly amplified the project's impact, expandingthe country's capacity to monitor and respond to COVID-19 and other infectious diseases.

The process of finalizing the oxygen plant specifications required careful alignment between the standards set by the MoH and WHO. The MoH's stringent requirement for an oxygen flow capacity of 95% or higher limited the pool of potential suppliers. Despite these challenges, UNOPS secured approval for the recommended supplier from the MoH, and the delivery was completed in July 2022. Construction of plant rooms and the installation of oxygen plants were carried out successfully, with operations commencing at Mullaitivu District General Hospital and Kantale Base Hospital before the end of 2022. UNOPS field teams worked closely with hospital staff to ensure the smooth execution of civil works and installation.

[12] COVID-19 Sri Lanka Strategic Preparedness & Response Plan 2021

The District General Hospital in Polonnaruwa required additional time to identify and prepare a suitable location for the plant installation. This space needed customization, which extended the timeline. Nevertheless, the oxygen plant at Polonnaruwa Hospital was successfully commissioned and began operations on 21 September 2023. Currently, the oxygen plants at Mullaitivu and Polonnaruwa District General Hospitals each have the capacity to fill 100 jumbo cylinders daily, while the plant at Kantale Base Hospital can fill 70 jumbo cylinders daily.

In July 2022, budget savings amounting to USD 91,732 were reallocated, following Government of Australia's approval. In consultation with the MoH, it was decided to procure 200 units of syringe pumps. This decision, endorsed by, Government of Australia led to the successful delivery of the syringe pumps to the MoH in November 2022.

These outputs directly contributed to strengthening the healthcare system's capacity, ensuring the availability of critical medical resources, and enhancing the overall resilience of health services in Sri Lanka. Despite some challenges, the project met its key targets, delivering significant benefits to the healthcare infrastructure and its beneficiaries.

- **Qualitative assessment:**

UNOPS' long-standing partnership with the Ministry of Health (MoH) was instrumental in sustaining momentum and ensuring the successful implementation of the project. This collaboration enabled the rapid mobilization of project staff to work closely with base hospitals, ensuring that civil works continued smoothly, even amid the challenges posed by the COVID-19 pandemic. TheUNOPS Sri Lanka office played a critical role during the pandemic, leveraging its expertise to establish oxygen plants across the region. Additionally, UNOPS' emergency procurement teamsuccessfully secured USD 28 million in funding to support the MoH's COVID-19 response efforts inSri Lanka, further demonstrating the strength of this partnership.

The success of the project can also be largely attributed to the effective partnerships with key stakeholders, including the WHO, the MoH, and the Government of Australia. WHO's technical expertise was invaluable during the initial stages of the project, providing critical guidance and technical insights that informed implementation strategies. With the support and specifications provided by the MoH, UNOPS delivered high-quality laboratory equipment, medical supplies, and oxygen plants that met stringent standards, significantly enhancing Sri Lanka's healthcare infrastructure. The installation of genomic sequencing machines marked a major milestone, greatly improving the country's capacity for epidemiological detection and management of the virus. Similarly, the installation of oxygen plants, each achieving a purity rate of 95% or higher, addressed urgent healthcare needs during the pandemic and represented a pioneering achievement in the country's healthcare system.

The Government of Australia's financial support was pivotal in facilitating the procurement and installation processes, highlighting the critical role of multilateral cooperation in achieving project goals. Through these collaborative efforts, UNOPS successfully augmented the existing infrastructure by adding three additional oxygen plants to the 11 already in operation in statehospitals across the country.

Overall, the synergistic partnership between WHO, MoH, and the Government of Australia significantly contributed to the project's success. This collaboration shows the impactful outcomes that can be achieved through effective coordination and partnership among key stakeholders, ultimately leading to enhanced healthcare capacity and resilience in Sri Lanka.

ii) Indicator Based Performance Assessment:

Using the **Programme Results Framework from the Project Document / AWPs** - provide details of the achievement of indicators at both the output and outcome level in the table below. Where it has not been possible to collect data on indicators, clear explanation should be given explaining why.

	Achieved Indicator Targets	**Reasons for Variance with Planned Target (if any)**	**Source of Verification**
Outcome 1[13] Strengthened procurement and logistics capacity of the Sri Lankan health system with regards to diagnosis and treatment of COVID-19. **Indicator:** Hospitals in the Western, North, North Central provinces in Sri Lanka are equipped with oxygen plants and diagnostic equipment **Baseline:** Annual Health Statistics (2020), According to the WHO Sri Lanka Reports, there are 11 oxygen generation plants in Sri Lanka. **Planned Target:** 3 Oxygen concentration plants 2 genomic sequencing machines	3 oxygen concentration plants have been successfully installed in hospitals in District Hospitals of Mullaitivu, Polonnaruwa and Base Hospital of Kantale in Sri Lanka. 3 genomic sequencing machines have been successfully equipped in the laboratories of National Hospital of Kandy, Karapitiya Teaching Hospital and the Medical Research Institute of Sri Lanka. 200 syringe pumps have been successfully procured and delivered to the Ministry of Health	During the procurement process, athorough market assessment indicated that the initially allocated budget could support an additional machine, allowing UNOPS to procure and deliver three genomic sequencing machines in total. Project savings resulted in procuring additional 200 syringe pumps	Reports by the State Ministry of Production, Supply and Regulation of Pharmaceuticals, Implementing Partners and Donor reports

[13] Note: Outcomes, outputs, indicators and targets should be **as outlines in the Project Document** so that you report on your **actual achievements against planned targets**. Add rows as required for Outcome 2, 3 etc.

Output 1.1 Procurement, Supply and Installation of three Oxygen Plants in the main district hospitals of Mullaitivu, Polonnaruwa, and Kantale. **Indicator 1.1.1** District hospitals in Mullaitivu, Polonnaruwa and Kantale have oxygen concentration plants installed **Baseline:** Annual Health Statistics (2020), According to the WHO Sri Lanka Reports there are 11 oxygen generation plants in Sri Lanka. **Planned Target:** Procurement, Supply and Installation of Oxygen plants in three hospitals	Three oxygen concentration plants have been successfully installed in the District Hospitals of Mullaitivu, Polonnaruwa and Base Hospital of Kantale		Reports by the State Ministry of Production, Supply and Regulation of Pharmaceuticals, Implementing Partners and Donor reports
Output 1.2 Single Story Plan rooms for Oxygen Plants are constructed timely and cost effectively in the Mullaitivu, Kantale and Polonnaruwa Hospitals under UNOPS infrastructure guidelines **Indicator 1.2.1** Hospitals in Mullaitivu, Polonnaruwa and Kantale have single story Plan rooms constructed **Baseline:** **Planned Target:** Construction of single story Plan Rooms in three hospitals for each Oxygen Plant	Single-story plan rooms have been successfully constructed in the hospitals of Mullaitivu, Polonnaruwa, and Kantale.		Reports by the State Ministry of Production, Supply and Regulation of Pharmaceuticals, Implementing Partners and Donor reports

Output 1.3 Procurement of 2 Genomic Sequencing Machines **Indicator 1.3.1** Western Province laboratories conducting COVID-19 testing is equipped with Genomic Sequencing Machinery **Baseline:** **Planned Target:** 2 Genomic Sequencing Machines installed in COVID-19 laboratories	Laboratories in the Western Province, Central Province and Southern Province conducting COVID-19 testing are nowequipped with Genomic Sequencing Machinery	During the procurement process, athorough market assessment indicated that the initially allocated budget could support an additional machine, allowing UNOPS to procure and deliver three genomic sequencing machines in total.	Reports by the State Ministry of Production, Supply and Regulation of Pharmaceuticals, Implementing Partners and Donor reports
Output 1.4 Procurement of 200 syringe pumps **Indicator 1.4.1** Ministry of Health in Sri Lanka is equipped with syringe pumps **Baseline:** **Planned Target:** 200 syringe pumps distributed across medical facilities in Sri Lanka	200 syringe pumps have been successfully distributed across medical facilities in Sri Lanka bythe Ministry of Health	Project savings resulted in procuring additional 200 syringe pumps	Reports by the State Ministry of Production, Supply and Regulation of Pharmaceuticals, Implementing Partners and Donor reports

iii) Evaluation, Best Practices and Lessons Learned

Delays

The procurement process for the oxygen generator plants faced significant delays due to the time required to finalize the specifications and the limited number of suppliers that could meet the stringent requirements set by the Ministry of Health (MoH). Additionally, the selected supplier encountered difficulties in establishing Letters of Credit to confirm the order with the foreign manufacturer, leading to a nearly three-month delay.

Sri Lanka's financial crisis further heightened these challenges, causing price hikes, material shortages, and logistical issues, particularly affecting the construction of plant rooms.

Specific delays occurred in Polonnaruwa District Hospital, where identifying a suitable space for the plant installation proved challenging. The selected space also required significant customization,which extended the construction timeline and delayed the commissioning of the oxygen plant until 2023.

Challenges

The procurement and construction activities for the oxygen plant rooms coincided with Sri Lanka's economic downturn in 2022. The crisis severely impacted the construction industry, with escalating prices, shortages of materials, labor, and fuel, all contributing to delays. These factors necessitated time extensions for project completion.

Another major challenge was ensuring a stable and dedicated power supply for the oxygen plants, which required careful management due to the high power demand and sensitivity of the equipment to fluctuations. This issue was effectively addressed with the support of the district offices of the Ceylon Electricity Board.

Lessons Learnt

1. **Efficiency through Parallel Project Implementation:** During 2021-2023, UNOPS implemented two parallel projects for establishing oxygen concentrator plants in multiple hospitals. By sharing resources and combining procurement of goods, services, and works, these projects were executed efficiently, optimizing both cost and time.

2. **Adapting to Financial Challenges During the Economic Crisis:** In 2022, Sri Lanka’s economic crisis severely impacted project execution. The Sri Lankan Rupee depreciated sharply, and restrictions on USD remittances created challenges for local suppliers. UNOPS resolved this by coordinating with its country office and headquarters to directly pay the manufacturer in Europe from UNOPS’ overseas bank account. This novel approach was a key lesson for the project team in managing financial flows during a crisis.

3. **Procurement Flexibility in Response to Market Volatility:** The unstable exchange rate and rising construction material prices caused contractors to withdraw from previously agreed contracts. UNOPS had to reinitiate the procurement process, updating contract values to reflect

USD pricing. This experience highlighted the need for flexibility in procurement processes, especially in contexts of economic instability.

4. **Critical Importance of Early Planning and Supplier Availability:** The economic crisis exposed the need for thorough and early planning. Delays in finalizing technical specifications, combined with a limited pool of compliant suppliers, caused setbacks. This underlined the importance of preparing well in advance, particularly when working with projects that have strict technical standards.

5. **Ensuring Reliable Infrastructure Support:** Oxygen concentrator plants require stable power sources to operate effectively. Collaborating with local partners, such as the Ceylon Electricity Board, to secure reliable electricity was crucial. This emphasized the importance of integrating infrastructure considerations into project planning for critical medical equipment.

6. **Sustainability Considerations during Laboratory Equipment Procurement:** One of the project objectives is to strengthen the country's PCR testing laboratories to improve the ability to identify Covid-19 virus mutations. Initially, two genomic sequencing machines were planned for procurement, but this was later revised to three. However, during the finalization of specifications, the Ministry of Health noted that while the genomic sequencing machineswould be provided, the necessary additional machinery and accessories required for testing were not available in the laboratories. A list of 19 essential items, including laboratory equipment and consumables, was requested to complete the test cycle independently. This requirement had not been anticipated during the project's initiation.

   Nevertheless, market research revealed that procuring these additional items was feasiblewithin the existing budget, including contingencies, and they were successfully delivered.

   It is recommended that future engagements, particularly when procuring medical or laboratory equipment, include detailed discussions with key stakeholders at the initial stage to clarify all relevant items and services required. This will help avoid changes during implementation and ensure the project's outcomes are achieved efficiently.

iv) A Specific Story (Optional)

Empowering Resilience, Oxygen Boosts Health Services in Mullaitivu
~ Dr. Sivagnanasuntharam Seralathan- Director, Mullaitivu District General Hospital

Problem / Challenge faced: "During the height of the COVID-19 pandemic, securing a consistent supply of oxygen became a critical challenge for our hospital. As the Director of Mullaitivu District General Hospital, I witnessed firsthand the struggles we faced. Our emergency unit, intensive care unit, and operating theatre all required a high volume of oxygen. However, our hospital was solely dependent on oxygen cylinders, which we had to transport from Mannar and sometimes even Anuradhapura. This process was not only logistically challenging but also costly, especially with the high transportation costs. Arranging transportation, managing staff, and dealing with financial constraints added immense pressure on our already strained resources".

Programme Interventions: "When UNOPS proposed the installation of an oxygen generator plant at our hospital with the support of the Government of Australia, it was a significant development for us. The installation of this plant has truly made a difference. The machine, capable of producing 900 cubic meters of

oxygen per hour with 96 percent purity, is the first of its kind in Sri Lanka. It generates enough oxygen to fill 100 jumbo cylinders per day, meeting our hospital's needs and also assisting nearby hospitals".

Result (if applicable): "The impact on our community has been significant. With this oxygen plant, we no longer have to rely on external suppliers or face logistical challenges. We now provide a steady, reliable supply of oxygen directly to our ICU, in addition to the traditional cylinders. UNOPS played a crucial role in connecting the oxygen supply to our ICU, and thanks to the new plant, we can now serve not only the people of Mullaitivu but also nearby districts, including Kilinochchi, Vavuniya, and Jaffna".

Lessons Learned: "The project showed the critical importance of having a reliable, on-site oxygen production system. We realized the value of strong partnerships in overcoming logistical and financial challenges. These lessons are crucial for enhancing future health interventions and crisis response strategies".

Increasing Oxygen Production capacity in Sri Lanka- *Project Video (Youtube)*

Construction of Plant Room in Kantale Base Hospital	*Construction of Plant Room in Mullaitivu DGH*
	
Photo Link	*Photo Link*
Unloading Oxygen plant at Mullaitivu Hospital	
	
Photo Link	*Photo Link*

Plant room constructed under the project, Mullaitivu	*Installation of the oxygen plant*
	
Photo Link	*Photo Link*
Oxygen Plant, Mullaitivu District General Hospital	*Oxygen Plant, Kantale Base Hospital*
	
Photo Link	*Photo Link*
Oxygen Plant, Polonnaruwa District Hospital	*Australian High Commissioner's Visit to the Oxygen Plant in Mullaitivu*
	
Photo Link	*Photo Link*

Kantale Oxygen Plant Handover Ceremony	
	
Photo Link	*Photo Link*