

COVID 19 Chemicals and Waste - Mozambique



Regional Hub: Anglophone Africa

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1. Introduction

Coronavirus disease 2019 (COVID-19) is caused by infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus strain. COVID-19 pandemic has infected millions of people worldwide and has killed hundreds of thousands. The pandemic has galvanized the global scientific and medical communities, resulting in over 21,000 scientific publications in just the first 6 months of 2020. An important early conclusion is that the severity of COVID-19 is dependent upon the pre-existing health condition of the patient, which compromises the ability to fight the disease. The COVID-19 pandemic is placing the country under an unprecedented situation. Mozambique is still struggling to recover from the devastation brought by Cyclones IDAI and Kenneth in 2019, and violence in Cabo Delgado which has displaced thousands of people. The situation aggravated the spread of the virus; therefore there is a need for urgent action to contain the virus and the consequences. According to Flash Appeal for COVID-19 Mozambique Report¹, the first case of COVID-19 was confirmed on the 22 March 2020. As of 26 May 2020, Mozambique had 194 cases, of which 168 were locally transmitted. The capital Maputo and the province of Cabo Delgado are currently the epicenters of the outbreak in the country. Pemba and Afungi have registered more than 50 percent of the overall cases. Other provinces affected are Manica, Inhambane, Gaza, Tete and Sofala.

There are 1.3 million older people in Mozambique, which is 5 percent of the population. About 16 percent of women over 60 years of age live alone but earn their livelihood by working in different communities, increasing their risk of exposure. About 2.3 million people are living with HIV (12.4 percent of the population) and an estimated 162,000 people are living with TB (of whom 58,000 also have HIV). People living with immune-compromised conditions have poor access to health services, with 50 percent of the general population living more than 20 kilometers from the nearest health facility services.

Following the emergence of COVID-19, the President of Mozambique, Hon. Filipe Nyusi, declared a state of emergency on 1st April 2020. He announced a number of measures to contain its spread, including prohibition of public and private gatherings and closure of all external leisure and entertainment establishments, schools, and borders to neighbouring countries, among others. He also put in place financial measures to support the private sector to face the economic impact of the pandemic. The emergency was extended until the end of 2020, when this report was being prepared.

Prior to the COVID-19, multiple disease outbreaks such cholera, malaria, HIV and TB were already stretching Maputo city and Matola's weak health systems. Health centers, including main hospitals (Mavalane, Central and Provincial Hospital), are facing significant operational challenges in this pandemic as there are shortages of staff, equipment and medications for critical services.

¹ <https://www.who.int/health-cluster/countries/mozambique/Mozambique-Flash-Appeal-COVID-19.pdf?ua=1>

2. Impacts of the pandemic on chemicals and wastes

AFSD, in collaboration with VALOR (a local NGO), has been conducting a lot of work to integrate solid waste collection into value chain development and promote safe livelihoods. One can notice the degree of exposure of waste collectors to COVID-19 in the course of their activities, due to lack of information related to preventive measures for COVID-19 imposed by the government and World Health Organization (WHO). Waste collectors are often marginalized and discriminated from the information system. The pandemic also comes with a disproportionate negative effect on gender equality. During the pandemic, women are most affected and frequently find themselves in a disadvantaged economic position. This is because women are more vulnerable, as they have roles to play both at the household and in the field; hence they are more likely to be exposed in different areas. In the household, they are responsible for cleaning and washing, including clothes and homemade masks (reusable), and disposing of wastes that may be contaminated.

There has been an increase of chemicals use and waste generation, particularly plastic waste, in the endeavour to protect people from the COVID-19 pandemic. This includes use of sanitizers and disinfectants, face masks, and gloves, among others. Handling and disposal of these chemicals, waste water from hand washing, and containers of disinfectants and sanitizers has been a big challenge, putting communities and waste collectors at great risk of being infected. The making of sanitizers has been done widely, and, according to the labels, some of the manufacturers are not registered; hence, it is difficult to control their quality and safety standards.

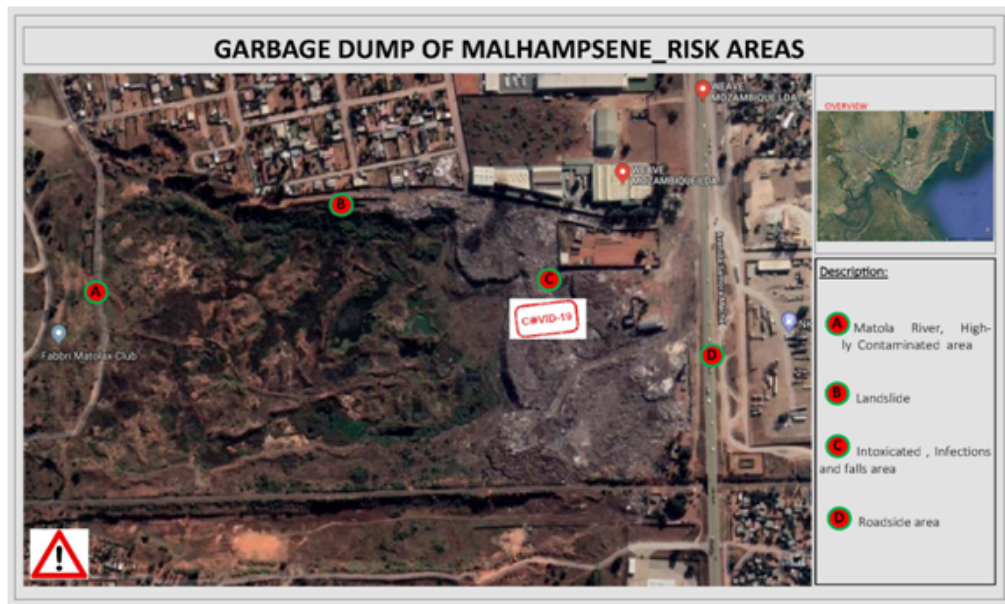
Via discussions and observations, the study team noted the impacts of increased chemicals and waste due to the pandemic as:

- a) Increased open disposal of related chemicals and waste, contaminating surface and ground water;
- b) Open burning of COVID-19-related waste including plastic, likely generating and exposing more people to pollutants like POPs;
- c) The lockdown and poor handling increased the volume of waste in homes, which in turn can aggravate the spread of the pandemic; and
- d) Unsorted waste increases pressure on the dumps, causing pollution of soil, air, water and groundwater, and the devaluation of spaces in large cities with the creation of open-air dumps.

These issues indicate that a comprehensive understanding of the health, work and social care systems to prepare and engage the waste collectors to prevent them from further waves of COVID-19 is needed. Specific concerns include public health functions, leadership and governance, health information systems, and access to diagnosis and treatment. Effective collection, segregation, recycling and re-use play fundamental roles in waste management, as they ensure the significant forwarding of waste that would go to the dumps and consequently decrease the pressure of the dumps. .

The project involved workplace assessment, sensitization and awareness-raising with waste collectors in Malapane and Hulene; and with farmers' communities in Mahelane, Mafuiane and Mahubo. Assessment was also done to identify the number of individuals wearing masks at the Municipality dumpsites and at the farms, as follows:

- Identify the types of masks and hand sanitizers used in public places,
- Assess whether masks and hand sanitizers are used correctly, and
- Assess knowledge, attitude and practices on the use of the masks and hand sanitizers.



Picture 1. Dumpsite risk area for COVID-19 wastes

Findings for use of face masks and sanitizers

AFSD observations and interviews in the field took place over 2 weeks (between October - November 2020) in the communities and Municipal dumping sites with the aim of assessing aspects related to knowledge, attitudes, and practice of the use of masks and the hand sanitizers. In relation to the type of masks, most of the individuals observed wore homemade masks (85.3%), followed by surgical masks (8.2%). People had no clear understanding of the ingredients of gel hand sanitizers (labels were in English or without composition information). The study shows that there is a need for greater pedagogical dissemination on the use of masks and hand sanitizers, and for monitoring compliance with COVID-19 prevention standards set by government authorities. There is also a need for more time and space in the media for dissemination of information on COVID-19 prevention mechanisms.

Conventional medical masks are effective for preventing infections and for environmental protection. Scientific research data show that the use of masks during epidemics or outbreaks of viral diseases is an effective measure for protection of health professionals and for risk reduction of positive patients spreading the disease (World Health Organization (WHO), 2020). In April 2020, WHO released an updated guide on the use of masks in the context of COVID-19, where, in addition to what they previously elucidated, they recommended the massive use of masks by people without symptoms. WHO also reinforced that surgical masks and respirators, such as N95, should be used by professionals (PAHO 2020, WHO 2020). However, research has evidenced that the use of face masks only does not guarantee effective protection against infections, and to this end it should be combined with other personal protective measures, such as hand hygiene, keeping a certain distance from people with symptoms, and practicing the “etiquette cough” (when coughing or sneezing, covering the mouth and nose with your elbow flexed or with a handkerchief paper that should then be thrown away, and then sanitizing the hands).



Picture 2. Instructions for use of masks



Picture 3. Farmers with homemade masks (Photo by AFSD)

Spraying, cleaning and disinfecting surfaces in Mozambique

The country COVID-19 situation on 5 December 2020 was: 108 new cases, 14,448 confirmed cases and 113 deaths cases.² The fight against Coronavirus will not be won until every country in the world can control the disease, and until the existence of the vaccine. Noting that different counties have different abilities to protect their citizens, low-income countries, including Mozambique, struggle with weak health systems. Mozambique, with a large population of 29.5 million (INE, 2018) and significant impoverished people and crowded cities, needs concrete, established measures to fight the pandemic. It is also important to understand that most low income countries rely on some sort of “FIRST AID “donations from outside countries like China³, Europe, etc.

According to WHO⁴, disinfection practices such as using surface disinfectants can be important in protection against COVID-19. This is practiced in the study area. The study found that most of the disinfectants used by the majority of households, farmers and waste collectors are bleach and dishwashing liquid. There is a need to have appropriate products with controlled quality and standards.

Sample equipment for spraying and sanitizer available for use in the country



Picture 4. Bleach, dishwasher liquid, gel hand sanitizer (Photo by AFSD)

² <https://www.who.int/countries/moz/>

³ <https://clubofmozambique.com/news/covid-19-china-donates-equipment-and-support-material-to-the-military-hospital-of-maputo-163447/>

⁴ <https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-cleaning- and-disinfecting-surfaces-in-non-health-care-settings>



Picture 5. Hand washing soap and gel sanitizer at the supermarket and restaurant (Photo by AFSD)



Picture 6. Tunnel at entrance of the Ministry of Health (Photo by AFSD)

Waste disposal challenges

The main challenge Mozambique is facing is related to regulatory and institutional arrangements, citizen feedback mechanisms, and resources for the sound disposal of COVID-19 chemicals and waste. Despite the effort to control the pandemic, chemicals used and waste generated pose risks to human health and the environment. For example, surgical masks were found dumped directly in open spaces in the field, and are sometimes burnt in the open air, which can cause cross-contamination among the family members and

waste collectors. This is due to lack of awareness on the ill-effects of open dumping and burning of waste.

Given the challenges, it becomes necessary to:

- Raise awareness about the impacts of burning trash to human health and the environment and build capacity on sound disposal of wastes,
- Influence policy makers to take informed decisions and provide appropriate measures and instruments for sound disposal wastes,
- Share information-education-communication materials (i.e. brochures) in local languages,
- Raise awareness through street dramas,
- Hold radio programs and publish newspaper articles to reach broader audiences and increase understanding at all levels about the effects of COVID-19 chemicals and wastes.

Lessons learned

The interventions by AFSD, with extensive support from IPEN, Valor and the Volunteer Team, ensured that all stakeholders involved in the project (waste collectors, farmers, communities, Health Department, Municipality) gained new knowledge and increased understanding about the health risks and impacts of the COVID-19. Additional information offered by the Health Department included best practices and demonstration of use of the masks, and how to treat surgical mask and gloves, and included the following:

- Careful handling and use of masks,
- How to adequately wash the hands,
- How to wash and treat the homemade masks,
- How to handle the hand sanitizer, and
- How to separate the garbage (gloves and masks and empty gel hand sanitizer) into different containers.

3. Policy recommendations relevant to the findings in the report

Based on the study, the following are policy recommendations:

- Provide guidelines for making masks at home and controlling hand sanitizers;
- Adopt different and creative working arrangements to avoid crowding of people; i.e. reducing the physical presence of people in the workplace and consequent presence in public transport;
- Increase awareness and vigilance for effective compliance with prevention in places with gatherings, including farms, markets, transport, supermarkets, funeral events and dumpsites;
- Step up dissemination and monitoring of compliance with preventive measures with all key stakeholders;

- Step up awareness-raising actions so that all the people put prevention measures in place;
- Design measures to protect vulnerable groups, such as autoimmune patients, chronically ill patients and the elderly, among others;
- The Health Department should ensure control measures and security in dumpsites during the pandemic;
- Ensure that the Municipality works very closely with waste collectors and the Health Department in order to mitigate contamination risks; and
- Ensure the availability of treatment of chronic patients during the pandemic.

Project Outcomes:

4. Description of the activity conducted

The project involved the following activities:

- a) Desktop literature review,
- b) Data collection through interview – questionnaire and checklists (use of the WhatsApp group, Zoom meetings, Facebook meeting),
- c) Field consultation,
- d) Dissemination of the information through info graphics and fact sheet, and
- e) Report preparation.

The activities were carried out by 2 persons from AFSD, 1 person from academia, and 5 volunteers. A total of 15 in-depth interviews were conducted; one in each of the 15 locations selected for observations and interviews). The interviewers assessed aspects related to knowledge, attitudes, and practices on the use of masks in the context of COVID-19 prevention. The interviewees included garbage collectors, farmers and other users of masks. It involved both men and women aged 18 years old and above.

The study team consulted a total of 39 people including 24 women, 10 men and 5 youths, age range from 18 to 50 years old as shown in the table below.

Table 1. Stakeholders consulted

Area Covered	No. of Women	No. of Men	No. of Youths
Hulene	8	2	1
Waste Collectors			
Maplashene			
Waste Collectors			

Mafuiane	6	3	0
Farmers			
Mahubo	5	3	4
Farmers			
Mahelane	5	2	0
Farmers			

The participants are residents of Maputo city and the Province of Maputo (Matola), in peri-urban areas as well as villages- Namaacha, Mahubo and Mafuiane and have a low level of formal education. The results of this study show that the level of knowledge and the economic conditions play key roles towards COVID-19 protection, particularly in complying with the quarantine and self isolation, as well as other effective prevention measures. Also, for most participants information and knowledge in relation to prevention of COVID-19 is not yet enough; there are still many questions asked by participants that they need clarification about or appropriate answers for.

The fight against the pandemic in SARS-CoV-2/COVID-19 presupposes the effective adoption of prevention measures. In this context, it was noted that individual prevention measures, such as hand washing and disinfection and use of masks are on the increase. However, the effectiveness of these measures necessarily depends on the combination of measures and rigor in their application.

Awareness and dissemination

After the initial consultation, dissemination of the needed information was done to increase knowledge, educate, and raise awareness of the waste collectors and communities. This was done through a training workshop, dialogues, and follow-up discussions. Information included:

- i. Understanding the COVID-19 pandemic and its impacts on chemicals and waste management, ensuring the safety of waste collectors and community activities in accordance with the prevention measures of COVID-19.
- ii. Understanding the impact of the masks, hand sanitizers, disinfectants, disinfection tunnels, and hospital waste to human health and the environment.
- iii. Identifying and listing approved disinfectants and chemical additives used for the COVID-19 19 pandemic for human and environmental safety.
- iv. Recommending safe and good practices for hand disinfection and safe work places or environments.

- v. Understanding the COVID-19 differential effects on gender equality (women, men and children).

Sample training materials developed and disseminated





5. Communication with National or Local Authorities

AFSD communicated with and engaged the Ministry of Health, Municipalities and governments, Mavalane Hospital and the International Labour Organization (ILO). There was a general commitment for continued engagement with other governmental institutions, health care professional organizations, and waste collectors to address the critical public concerns related to the COVID-19 pandemic.

In recognizing the important role other stakeholders play in the health care services, AFSD also consulted and engaged other NGOs and stakeholders and will continue to engage them and hear directly from impacted stakeholder groups.

Communications involved the following:

Name	Institution	Status	Contact	Emails
Berta	Livaningo	NGO	844277488	
Palmira	MISAU	Psychology	844211488	
Calton Lancol	MISAU	Doctor	8442288551	Asono.ivia@gmail.com
Nércio Duvani	CM Maputo	Municipality Maputo	84726157	
Paulina	CM Matola	Municipality Matola	842154987	
Albertina	Livaningo	NGO	828405563	
Ana Gonçalves	UEM (Universidade Eduardo Mondlane)	Docente - GRSU		
Sidonio Contage	MITADER	Área de Resíduos	848986084	
Maria Helena	Mavalne Hospital	Doctor	844951113	N/A
David Pelembe	SDAE (SDAE - Sociedade de Actividades Economicas)	ENG. Farmer leader	845534713	Pelebedvid1017@gmail.com

Suzana	Waste Collector	Focal Point 1	846695106	N/A
Fernando	Waste Collector	Focal Point 2	842986450	N/A
Harum Hassam	Detergents Supplier	Company	878787110	Harum.hassam@gmail.com
Vladimir Nomier	MGCAS	Coordinator	865808920	vnomier@yahoo.com
Ruben Vicente	ILO	Representative	846921865	vicente@ilo.org



Pic 6 . Lorio during the communication with multi-stakeholder meeting

6. Changes from the original plans

AFSD faced some challenges in carrying out field consultations due to the COVID-19 pandemic restrictions. However, in collaboration with Valor and the Ministry of Health, and due to the Municipality endorsement, we managed to engage people working on the dumps. The first meeting was held with all of them. The meeting included a training session and awareness campaign in which Mavalane Hospital also participated.

7. Resources on chemicals and waste

The following are websites, databases, reports, and academic references used during the study.

1. <https://www.who.int/health-cluster/countries/mozambique/Mozambique-Flash-Appeal-COVID-19.pdf?ua=1>
2. https://covid19.ins.gov.mz/wp-content/uploads/2020/09/RIs-2020_Relatorio-preliminar-avaliacao-de-utilizacao-de-mascaras_12.07.20.pdf

3. <https://covid19.ins.gov.mz/wp-content/uploads/2020/09/Relatorio-Final-Cumprimento-da-Quarentena-e-Isolamento-Obrigatorio-em-Maputo.pdf>
4. <https://www.who.int/countries/moz/>
5. <https://clubofmozambique.com/news/covid-19-china-donates-equipment-and-support-material-to-the-military-hospital-of-maputo-163447/>
6. <https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-cleaning-and-disinfecting-surfaces-in-non-health-care-settings>
7. <https://www.publichealth.columbia.edu/coronavirus-updates>

8. Webinars conducted for consultation and dissemination of results

The following are media links for the consultation and dissemination, which included a Zoom meeting and a Facebook meeting.

Facebook : <https://www.facebook.com/ANacaoVerde/videos/366565874670308>



Zoom

First meeting on 13 November 2020:

Topic: IPEN chemicals and waste project
 Time: Nov 13, 2020 07:00 PM Africa/Maputo

Join Zoom Meeting

<https://us04web.zoom.us/j/73868372128?pwd=QlNXMFUyYjFhL3pKaFpuOE01VmxDz09>

Meeting ID: 738 6837 2128

Passcode: MvL7Xu

The meeting was attended by 11 persons (5 women and 6 men).

Second meeting on 20 November 2020

Topic: IPEN chemicals and waste
Time: Nov 20, 2020 05:00 PM Africa/Maputo

Join Zoom Meeting

<https://us04web.zoom.us/j/2507362192?pwd=MTlOV2t6YTZacm5jbXZLSlc3VkFwQT09>

Meeting ID: 250 736 2192

Passcode: MvL7X

The meeting was attended by 10 participants (6 women and 4 men) from the Ministries of Health, Ministry of Environment, private sector and civil society.

Field visits by AFSD team

