

## NDUBA dumpsite to be upgraded to a modern landfill to treat solid waste in Kigali city



Figure 1: Nduba dumpsite

Nduba dumpsite will be improved to a modern landfill to treat solid waste of Kigali City.

The management of Water and Sanitation (**WASAC**) promises that among its priorities is the treatment and management of solid waste in Kigali city. This commitment comes with two major improvements of introducing new contractor for the daily management of Nduba dumpsites as well as the Feasibility Study for construction of modern Solid Waste Management System including Detailed Design for the Construction of a Sanitary Landfill at Nduba, both initiatives to kick off in February 2020.

Adequate access to sanitation services is one of the fundamental elements for the social and economic development of a country. Rwanda has committed itself to reach very ambitious targets in sanitation, with the vision to attain 100% service coverage by 2024 according to seven-year government program. The importance of adequate sanitation services as drivers for social and economic development, poverty reduction and public health is fully recognized in Rwanda's flagship policy documents and political goals.

Solid waste management is one of the responsibilities of the municipalities that remains socially complex and technically challenging, because of a number of factors such as limited financial resources and lack of well-trained human resources to strategically plan, invest in and operate such system. The quantity of solid waste is gradually increasing every year in all the municipalities and emerging towns mainly due to fast urban population growth. Due to the lack of proper solid waste management, the City of Kigali faces the issues of

unsustainable use of resources, inefficient solid waste collection and transport, pollution to air, soil and water from e.g. poor waste handling, gas emissions and leachate, groundwater contamination at the dumpsite/landfill, risk of fire and landslides at the landfill or dumpsite. However, there are opportunities to reverse the situation with valorization of the waste for the better life of the population by the government or the investors in solid waste management and valorization.

Currently, municipal solid waste generated in the City of Kigali is estimated at over 500 tons per day. The generated municipal solid waste is majorly composed of organic waste that makes around 70%. With the current rate of urbanization and industrial growth, it is expected that plastic and packaging waste will increase compared to other types of waste as per National strategy for transformation. In addition, referring to the recent report on rapid assessment and options analysis for Kigali waste Disposal 2019, the organic waste is mainly composed of food waste. This, however, is not tapped but the organic waste is mixed with other waste types and landfilled.

The City of Kigali has two dumpsites for waste disposal, located at two different sites: Nyanza and Nduba in the city of Kigali. The Nyanza site in Kicukiro District has a surface area of 20.8 Ha, was opened in 1983 and closed in 2012 after serving 29 years. Nduba dumpsite began operations on 1st May 2012 with a surface area equivalent to 15 Ha and since then, an additional area of 19 Ha was secured for future expansion of the solid waste management project.

Currently, the City of Kigali is facing the issue of poor management of solid waste management value chain related mostly to the operational challenges of existing dumpsite at Nduba. This is not a sanitary landfill and there are both environmental and health impacts from the waste disposal. With the high organic content in the waste, there is methane gas generation at the site which causes both fires and GHG emissions.

The current system is not using the waste as a resource and the scarce recycling activities are carried out under poor working conditions by informal recyclers. Furthermore, Nyanza dumpsite as a closed dumpsite since 2012 is always subjected to landslides issue and any other contamination of the surrounding areas especially the fauna and flora near the closed dumpsite.

Considering the size of the active dumpsite at Nduba which is 24.42 Ha (with a possibility to be extended to 54 Ha) and the closed one at Nyanza with the size of 20.89 Ha, these dumpsites need to be properly remediated to mitigate the environmental challenges that may be risen. For such endeavor, namely the remediation of the two dumpsites and the establishment of a proper solid waste management system, a feasibility study is needed. Such feasibility study will come up with effective and efficient municipal solid waste management proposals and options to improve each step of the municipal solid waste value chain from its

generation to its final use, considering the theories of circular economy and maximum resource recovery that the country has adopted.



*Figure 2: Nduba dumpsite side view*