Progress on Sustainable Development Goal for Sanitation and Hygiene in Sub-Saharan Africa

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ABSTRACT: The Sustainable Development Goal (SDG) target 6.2 focuses on ensuring that everyone has access to adequate sanitation and hygiene services by 2030. This study harvested data from the 2021 Joint Monitoring Programme (JMP) report of the SDG target 6.2 to assess the progress on sanitation and hygiene in sub-Saharan Africa (SSA) countries. The sanitation and hygiene data for countries in SSA were extracted and analyzed to determine the progress towards the attainment of the SDG target 6.2. The analyses revealed that the rate of annual progress for at least basic sanitation (50%) and basic hygiene services (22%) in SSA from 2015 to 2020 was very low. However, the t-test results showed that there were significant differences in the proportion of the population using at least basic sanitation (t = -7.910, p = .000, α = 0.05), open defecation (t = 6.517, p = .000, α = 0.05) and basic hygiene (t = -3.830, p = .000, α = 0.05) services from 2015 to 2020. In spite of the t-test results, the projected coverage for basic sanitation and basic hygiene services by 2030 were 38% and 28.2%, respectively, which showed that SSA might miss the SDG target 6.2, if urgent measures are not taken to address the situation. It is therefore recommended that a detailed audit of the sector should be carried out in each country to identify areas that need urgent interventions and scale up of activities.

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Several studies have recognized the importance of safe drinking water, sanitation and hygiene (WASH) services for healthy living and socio-economic development (Hutton and Chase, 2016; WHO, 2017; Roche et al., 2017; Ohwo and Omidiji, 2021; Zerbo et al., 2021). Hence, Sustainable Development Goal (SDG 6) focuses on ensuring that everyone has access to water and sanitation by 2030; with target 6.1 devoted to achieving universal and equitable access to safe and affordable drinking water for all; while target 6.2 is “to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations” (WHO and UNICEF, 2017). These targets are quite laudable and ambitious, which require the concerted efforts of all stakeholders for their actualization. This calls for close monitoring of progress towards the attainment of the set targets, which will enable policy and decision makers in the WASH sector to be well informed of progress being made and where special interventions are needed to address urgent mitigating factors. Although appreciable improvements have been recorded globally on the provision of WASH services since 2000, however, the actual rate of improvement seems to lag behind the expected rate of progress that could match the high rate of population increase globally and in SSA to be specific. Five years into the SDGs (2015-2020), a large number of SSA population lacked adequate sanitation and still practice open defecation (OD). For example, only 30% of about 959 million and 33% of about 1.1billion people in SSA

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used at least basic sanitation in 2015 and 2020, respectively. This is a far cry from the global average of 73 and 78% for the same period (WHO and UNICEF, 2021). On the other hand, 22 and 18% of SSA population practiced OD in 2015 and 2020, respectively (WHO and UNICEF, 2021). This implies that about 210 and 197 million people practiced OD in SSA within the same period. This situation could increase the vulnerability of the population of SSA to waterborne diseases because of the relationship between OD and prevalence of different types of health challenges (Galan et al., 2013; Bora et al., 2014; Strunz et al., 2014; Padhi et al., 2015; Mara, 2017). Apart from the health challenges associated with OD practice; the socioeconomic costs are equally huge. For example, OD practice alone cost 18 African countries US$2 billion in 2015 (Sengupta et al., 2018). In the same vein, yearly, OD cost Benin Republic, US$21 million; Mozambique, US$22 million; Kenya, US$26 million; Malawi, US$57 million; Ghana, US$79 million and Nigeria, US$1 billion (WSP, 2012). In addition to the economic cost of OD are the social costs, which have increased the susceptibility of women and girls to sexual, verbal and physical harassment and violence when searching for a convenient place to defecate, especially at night (Pardeshi, 2009; Corburn and Hildebrand, 2015). Furthermore, OD is unsightly; degrade the aesthetics of the environment and produces objectionable odour. The associated consequences of poor sanitation are indicative of the enormous gains that could be derived if SDG target 6.2a is attained. To achieve this target in SSA, the starting point is the complete elimination of OD. The hygiene situation in SSA is worse than the sanitation coverage, despite the fact that adequate hygiene practice is a cost effective method for breaking the transmission of infectious diseases. Hence, the World Health Organization (WHO) recommends hand washing with soap and water as one of the primary actions to control the spread of the COVID-19 pandemic and other infectious diseases. Although the issue of hand hygiene was thrust to the front burner during the aggressive campaigns to moderate the spread of the COVID-19 pandemic, however, not much has been achieved in SSA. For example, only 25 and 26% of the population of SSA had basic hygiene (availability of hand washing facility with soap and water at home) in 2015 and 2020, respectively; as against the global average of 67 and 71% during the same period (WHO and UNICEF, 2021). This shows that for a period of five years, SSA was only able to achieve one per cent increase (about 0.22% per annum) for hand hygiene coverage. The poor rate of coverage is a clear indication that little or no progress have been made in most countries in the region towards achieving the SDG target 6.2b, which has made SSA to exert serious negative impact on the global efforts to achieve the set targets. Failure of SSA to make reasonable progress towards the attainment of the targets would cost the region so much loss in terms of health and socio-economic well-being of the people. This assertion is in line with the statement by António Guteres, Secretary General of the United Nations, that “if we remain off track to deliver on SDG 6 then we jeopardize the entire 2030 Agenda for Sustainable Development” (United Nations, 2018). This is true because of the nexus between SDG 6 with the other SDGs. Hence, this study harvested data from the 2021 Joint Monitoring Programme report of the SDG target 6.2 to assess the progress on sanitation and hygiene in sub-Saharan Africa Countries.

**MATERIALS AND METHODS**

**Data Collection:** The data for the study were obtained from the 2021 JMP report on “progress on household drinking water, sanitation and hygiene 2000-2020: Five years into the SDGs”, which was obtained online (on 23 February, 2022) from “https://data.unicef.org/resources/progress-on-household-drinking-water-sanitation-and-hygiene-2000-2020”. The global report contains national data on WASH estimates for 234 countries, areas or territories. The data were available for 2015 and 2020 for each of the WASH services, and were disaggregated into urban and rural population coverage and presented according to the used service levels. For sanitation, the levels were: “at least basic (use of improved sanitation facility that is not shared), limited (use of improved sanitation facility that is shared), unimproved (inadequate sanitation facility) and OD (without any sanitation facility)”. For hygiene, the service levels were: “basic (availability of hand washing facility with soap and water at home), limited (availability of hand washing facility without water or soap) and no service (no hand washing facility, water and soap)”.

**Data Analysis:** The collected data were presented in tables and analyzed using both descriptive (percentages) and inferential (t-test) statistics. The descriptive statistics was used to determine the proportion of each country’s population that used at least basic sanitation, basic hygiene, practice OD and had no hygiene services. In addition, it was used as a basis for comparing the level of progress among the countries in the region. The t-test was used to test whether there was significant difference in the proportion of the population in SSA that used at least basic sanitation, basic hygiene, practice OD and have no hygiene services between 2015 and 2020, respectively, at 0.05 confidence level, using SPSS version 15.0. Based on the rates of annual progress,
which were documented by the JMP 2021 report, projections of expected coverage for at least basic sanitation and basic hygiene by 2030 were made for each of the countries studied. These projections were aggregated and used to represent the anticipated future state of sanitation and hygiene in SSA.

RESULTS AND DISCUSSION

**Progress on Sanitation:** Progress on sanitation coverage in SSA was analyzed based on the percentage of the population that used at least basic sanitation or practice OD. Achieving the SDG target 6.2a in the region implies that everyone should have “safely managed sanitation” and no one should continue to practice OD by 2030. Despite the inherent benefits of achieving this target, however, most SSA countries are still far from making reasonable progress in this direction, as the level of coverage varies among and within countries. For example, the average coverage for at least basic sanitation in SSA shows that the rural areas had 21% in 2015 and 23% in 2020, as against the urban coverage of 44 and 46% for 2015 and 2020, respectively (WHO and UNICEF, 2021). This shows a service gap of 23% in favour of the urban area. Similarly, the service gaps in the practice of OD also favoured the urban area as only 7% and 5% of the urban population practiced OD in 2015 and 2020, respectively; while the proportion of the rural population that practiced OD were 31 and 27% during the same period (WHO and UNICEF, 2021). This is a clear indication that the rural area of SSA contributed more to the region’s 22 and 18% figures for OD practice in 2015 and 2020, respectively. Considering the current national annual rate of change (-0.72%) in OD practice in SSA (see Table 1), it is evident that the region would miss the target 6.2a, if the current rate of progress is sustained. The sanitation coverage for countries in SSA as presented in Table 1 shows great disparity in services. For example, the use of at least basic sanitation among the countries in SSA ranges from 7.99% in 2015 and 9.99% in 2020. Ethiopia has the lowest range for both 2015 and 2020; while Réunion and Seychelles had the highest range in 2015, and three countries (Mayotte, Réunion & Seychelles) had the highest range in 2020. There were only 18 (37.3%) countries that had five per cent and above increase in coverage in the use of at least basic sanitation from 2015 to 2020. It is therefore not surprising that only 12 (25%) countries had one per cent and above annual growth rate of the use of at least basic sanitation in the region from 2015 to 2020. Zimbabwe had the lowest annual growth rate of -0.47%, while Lesotho had the highest annual growth rate of 2.11%. In addition, only 10 (20.8%) countries had 50% and above of their respective population using at least basic sanitation in 2015, while the figures were 14 (29.2%) countries in 2020. In addition, using the annual growth rate of respective countries to project to 2030, it was discovered that only 18 (37.5%) countries would have 50% and above of their respective population using at least basic sanitation (see Figure 1). Based on the projections, Democratic Republic of Congo (DRC) had the lowest (10.7%) projected coverage by 2030; while Mayotte, Réunion and Seychelles were projected to achieve 100%. This is a positive pointer that at least three countries in the region would meet the set targets for SDG 6.2a all things being equal by 2030. Furthermore, the t-test results for the use of at least basic sanitation were, $t_{47} = -7.910, p = .000, \alpha = 0.05$. Since the 2-tailed p-value of .000 was less than the alpha value of 0.05, it means that there was a significant difference in the percentage of the population in SSA that used at least basic sanitation services between 2015 and 2020.

In spite of the t-test result however, three countries, Central African Republic (CAR), DRC and Zimbabwe, retrogressed in at least basic sanitation services from 16-14%, 17-15% and 38-35%, from 2015 to 2020, respectively. Surprisingly, this is an improvement over the projections that by 2030, nine countries would experience negative progress in basic sanitation provisions in SSA (Zerbo et al, 2021). These statistics show that sanitation provisions in many countries in the region are progressing at a very uncomfortable rate, which corroborates previous findings (Hopewell and Graham, 2014; Armah et al, 2018; Ukoji and Ndakara, 2021). This situation could make many countries to miss the SDG target 6.2a; just as only three countries (Cape Verde, Réunion, Seychelles) met the MDG targets for sanitation by 2015 (Ohwo and Agusomu, 2018).

The SDG target 6.2a would have been missed by any country where OD is practiced by 2030. Since it is the worst form of sanitation, its elimination was specifically mentioned in target 6.2a. This means that the first positive step towards achieving target 6.2a is to completely eliminate any form of OD. Unfortunately, in most of the countries in SSA, OD practice is still very rampant.

For example, OD practice ranged from <1-72% in 2015 and <1-68% in 2020. The highest level of OD practice was recorded in Niger republic for 2015 and 2020; while the lowest level (<1) was recorded in Réunion, Mayotte and Seychelles in 2015. In 2020 it was recorded in South Africa, Gambia, Réunion, Mayotte and Seychelles. The rate of progress in the elimination of OD in the region is very slow as only 10 (20.8%) of the countries had 5% and above reduction from 2015 to 2020, with Ethiopia having the

Ohwo, O; Ndakara, OE
Progress on Sustainable Development Goal for Sanitation and Hygiene.

In all, only 12 (25%) of the countries in SSA had one per cent and above annual rate of OD reduction from 2015 to 2020. Similarly, the 2030 projected OD practice of countries in the region show that 22 (45.8%) of them would have five per cent and above of their respective population practicing OD. These

OHWO, O; NDAKARA, OE
statistics are not encouraging for a region that hopes to eliminate OD by 2030. Even if the region fails to meet SDG target 6.2a, it should at least eliminate OD. Some countries such as Cabo Verde, Ethiopia, Gambia, Malawi, Mali, Mayotte, Réunion, Seychelles and South Africa are already working in this direction and on the path to eliminating OD, even if they fail to achieve SDG target 6.2a, as the projected OD practice by 2030 suggest (see Table 1). In spite of the general low progress in the elimination of OD in the region, the t-test results for the use of OD were, $t_{27} = 6.517, p = .000, \alpha = 0.05$. Since the 2-tailed p-value of .000 was less than the alpha value of 0.05, it means that there was a significant difference in the percentage of the population in SSA that used OD between 2015 and 2020. However, based on the current level of progress in OD elimination in some countries in the region, this goal may not be achieved unless the rate of progress increases four folds.

![Countries projected to have 50% and above coverage for at least basic sanitation by 2030](figure1.png)

**Fig 1:** Countries projected to have 50% and above coverage for at least basic sanitation by 2030

*Source: Adapted from WHO and UNICEF (2021)*

**Progress on Hygiene:** Progress on hygiene provision in the region was assessed using the proportion of each country’s population with access to basic hygiene and no hygiene services. For any country to attain SDG 6.2b, the entire population must have access and use basic hygiene by 2030. Attaining this goal is a great challenge in SSA, not only because of the low rate of hygiene provision in the various countries but the disparities that exist among different groups in the region. For example, only 17 and 18% of the rural population had access to basic hygiene in 2015 and 2020, respectively, as against the 37% for urban population in both years (WHO and UNICEF, 2021). In fact, in all the countries in SSA basic hygiene provisions were higher in the urban area in 2020. The proportion of each of the country’s population that used basic hygiene and no access to hygiene services in 2015 and 2020 are presented in Table 2. From the table, it is evident that hygiene provisions in SSA are very low and varied widely between countries in the region just as the case with sanitation coverage. For example, basic hygiene coverage in the region ranged from 1-52% and 1-55% in 2015 and 2020, respectively. The lowest range in both years was recorded in Liberia; while the highest range for 2015 was recorded in Mauritania and in 2020 it was recorded in Sao Tome & Principe. Despite the intensive campaign on the need for hand hygiene practice during the outbreak of the COVID-19 pandemic, hygiene provisions in the region remain largely unchanged. For instance, only nine (24.3%) countries increased their basic hygiene coverage with two per cent and above from 2015 to 2020; with the highest increase of 8% recorded in Guinea-Bissau. In fact, only four countries (10.8%) had above one per cent annual increase of hygiene provision from 2015 to 2020. This is a clear indication that hygiene provision in the region is progressing at unacceptable low rate, which may lead to the non attainment of target 6.2b, as evident from the projected basic hygiene coverage of each country for 2030. The data revealed that only eight (21.6%) countries will have 40% and above of their respective population having basic hygiene services with the highest (78.0%) provision projected for Sao Tome & Principe (see Figure 2).

In spite of the low annual progress on basic hygiene provisions, the t-test results for the use of basic hygiene were, $t_{26} = -3.830, p = .000, \alpha = 0.05$. Since the 2-tailed p-value of .000 was less than the alpha value of 0.05, it means that there was a significant difference in the percentage of the population in SSA that used basic hygiene between 2015 and 2020. However, judging by the low projected coverage of basic hygiene by 2030, all the countries in SSA would most likely miss target 6.2b if the current annual rates of progress in the respective countries remain the same. Data on no hygiene services in the region were ridiculously high, since the proportion of the population with basic hygiene services was very low in most countries. The proportion of the population with no hygiene services ranged from 3-97% in 2015 and <1-97% in 2020. In both periods, Burundi had the lowest range; while Liberia equally had the highest values for both years. Despite the low values of no hygiene services recorded in Burundi, the proportion...
of her population with basic hygiene services was just 6% for both 2015 and 2020, which implies that majority of the population used limited hygiene. The data also suggest that there was no reasonable reduction on the proportion of the population without hygiene services in most of the countries from 2015 to 2020. For example, 19 (51.4%) and 17 (45.9%) countries had 40% and above of their population without hygiene services for 2015 and 2020, respectively. The t-test results for no hygiene services were, $t_{36} = 1.163$, $p = .253$, $\alpha = 0.05$. Since the 2-tailed p-value of .253 was higher than the alpha value of 0.05, it means that there was no significant difference in the percentage of the population in SSA without hygiene services between 2015 and 2020. This implies that appreciable progress have not been made in the provision of basic hygiene services in the region from 2015 to 2020, which increases the probability of SSA missing the SDG target 6.2b, by 2030.

The separate analyses of the data on sanitation and hygiene, the two components of SDG 6, target 6.2, has shown clearly that no country in the region is on the path to achieving the target 6.2 by 2030, based on the current rates of annual progress on both sanitation and hygiene services. Although three countries (Mayotte, Réunion & Seychelles) were projected to meet the sanitation component of target 6.2, however, none of them have data on hygiene services to adequately assess their chances of attaining the target. This situation calls for radical changes and reforms in the WASH sector to improve on the rates of annual progress on both sanitation and hygiene services.

**Table 2**: Percentage of Population Using Basic Hygiene and No Hygiene Services

| S/N | Country       | Basic Hygiene | No Hygiene | Remark (meet or miss target by 2030) |
|-----|---------------|---------------|------------|--------------------------------------|
| 1   | Angola        | 26            | 27         | 0.14                                 | 28.1                                 | 59 | 58 | Miss target |
| 2   | Benin         | 9             | 12         | 0.56                                 | 17.6                                 | 44 | 44 | Miss target |
| 3   | Burkina Faso  | 9             | 9          | 0.04                                 | 9.4                                  | 46 | 64 | Miss target |
| 4   | Burundi       | 6             | 6          | 0.01                                 | 6.1                                  | 3  | <1 | Miss target |
| 5   | Cameroon      | 36            | 36         | 0.15                                 | 37.5                                 | 4  | 4  | Miss target |
| 6   | CAR           | 19            | 22         | 0.51                                 | 27.1                                 | 71 | 63 | Miss target |
| 7   | Chad          | 21            | 25         | 0.88                                 | 33.8                                 | 53 | 44 | Miss target |
| 8   | Comoros       | 16            | 16         | 0.04                                 | 16.4                                 | 49 | 49 | Miss target |
| 9   | Congo         | 48            | 48         | 0.04                                 | 48.4                                 | 18 | 18 | Miss target |
| 10  | Côte d’Ivoire | 18            | 22         | 0.67                                 | 28.7                                 | 45 | 41 | Miss target |
| 11  | DRC           | 19            | 19         | 0.09                                 | 19.9                                 | 43 | 42 | Miss target |
| 12  | Ethiopia      | 8             | 8          | 0.07                                 | 8.7                                  | 39 | 38 | Miss target |
| 13  | Gambia        | 18            | 18         | 0.00                                 | 18                                   | 8  | 8  | Miss target |
| 14  | Ghana         | 41            | 42         | 0.08                                 | 42.8                                 | 22 | 22 | Miss target |
| 15  | Guinea        | 20            | 20         | 0.07                                 | 20.7                                 | 28 | 28 | Miss target |
| 16  | Guinea-Bissau | 10            | 18         | 1.53                                 | 33.3                                 | 82 | 69 | Miss target |
| 17  | Kenya         | 27            | 27         | 0.04                                 | 27.4                                 | 40 | 40 | Miss target |
| 18  | Lesotho       | 5             | 6          | 0.03                                 | 6.3                                  | 51 | 51 | Miss target |
| 19  | Liberia       | 1             | 1          | 0.04                                 | 1.4                                  | 97 | 97 | Miss target |
| 20  | Madagascar    | 26            | 27         | 0.20                                 | 29                                   | 30 | 30 | Miss target |
| 21  | Malawi        | 10            | 8          | -0.28                                | 5.2                                  | 15 | 16 | Miss target |
| 22  | Mali          | 16            | 17         | 0.14                                 | 18.4                                 | 30 | 30 | Miss target |
| 23  | Mauritania    | 52            | 53         | 0.20                                 | 55.0                                 | 20 | 19 | Miss target |
| 24  | Namibia       | 44            | 45         | 0.08                                 | 45.8                                 | 12 | 12 | Miss target |
| 25  | Niger         | 18            | 23         | 1.10                                 | 34.0                                 | 23 | 24 | Miss target |
| 26  | Nigeria       | 33            | 33         | 0.13                                 | 34.3                                 | 31 | 30 | Miss target |
| 27  | Rwanda        | 4             | 5          | 0.08                                 | 5.8                                  | 87 | 86 | Miss target |
| 28  | Sao Tome & Principe | 44 | 55 | 2.30 | 78.0 | 42 | 28 | Miss target |
| 29  | Senegal       | 21            | 22         | 0.11                                 | 23.1                                 | 57 | 57 | Miss target |
| 30  | Sierra Leone  | 16            | 21         | 1.08                                 | 31.8                                 | 56 | 64 | Miss target |
| 31  | Somalia       | 25            | 26         | 0.07                                 | 26.7                                 | 21 | 21 | Miss target |
| 32  | South Africa  | 44            | 44         | 0.13                                 | 45.3                                 | 12 | 12 | Miss target |
| 33  | Tanzania      | 48            | 48         | 0.16                                 | 49.6                                 | 35 | 35 | Miss target |
| 34  | Togo          | 14            | 17         | 0.70                                 | 24.0                                 | 75 | 74 | Miss target |
| 35  | Uganda        | 19            | 23         | 0.73                                 | 30.3                                 | 51 | 45 | Miss target |
| 36  | Zambia        | 17            | 18         | 0.11                                 | 19.1                                 | 31 | 31 | Miss target |
| 37  | Zimbabwe      | 42            | 42         | -0.01                                | 41.9                                 | 55 | 55 | Miss target |
| 38  | Sub-Saharan Africa | 25 | 26 | 0.22 | 28.2 | 35 | 34 | Miss target |

*Source: Adapted from WHO and UNICEF (2021)*

The separate analyses of the data on sanitation and hygiene, the two components of SDG 6, target 6.2, has shown clearly that no country in the region is on the path to achieving the target 6.2 by 2030, based on the current rates of annual progress on both sanitation and hygiene services. Although three countries (Mayotte, Réunion & Seychelles) were projected to meet the sanitation component of target 6.2, however, none of them have data on hygiene services to adequately assess their chances of attaining the target. This situation calls for radical changes and reforms in the WASH sector to improve on the rates of annual progress on both sanitation and hygiene services.
progress on sanitation and hygiene services in all the countries in the region, especially those that at the rock bottom of the progression ladder. Some of the challenges that militate against sanitation and hygiene provisions in the region include poor WASH policy, poor financing, corruption in the WASH sector, poor capacity of governmental agencies in charge of the WASH sector, poverty, political commitment, illiteracy amongst others (Ohwo, 2019; Kumwenda, 2019; Bishoge, 2021). Any developed strategy to scale up sanitation and hygiene provision in the region must address these and other constraints before reasonable progress can be achieved.

**Conclusion:** The study established that the rate of progress towards the attainment of SDG 6, target 6.2 in SSA is unsatisfactory, as a large proportion of the population in the region still practices OD and had no hygiene services in 2020. Based on the projected 2030 coverage for basic sanitation and hygiene services, SSA would miss target 6.2, with dire consequences on the population. This calls for a detailed audit of the WASH sector in SSA to identify areas that need urgent interventions and scale up of activities.

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**OHWO, O: NDAKARA, OE**
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