



Zanzibar, Tanzania

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Zanzibar Regional Report

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General Country Profile

Geography and population

Part of the United Republic of Tanzania, Zanzibar is located off the eastern coast of the Tanzania Mainland in the Indian Ocean. Zanzibar comprises of two islands: Unguja (1,666 sq kilometers) and Pemba (988 sq kilometers).¹ Zanzibar is warm and humid throughout the year with a relative humidity around 80%, mean low temperature of 24 degrees Celsius and mean high temperature about 31 degrees Celsius.¹ The seasons vary between dry and wet, with the rainy season in April and May and short rains in November.¹

While the United Republic of Tanzania includes a population of over 59 million, the total estimated population of Zanzibar is 1.9 million (2022).² Zanzibar is increasing in population at a similar rate to mainland Tanzania, with both averaging an annual population growth rate of 3.2 percent (2022).² This is an increase from the prior reported average population growth rate of 2.7 percent in 2012.² Zanzibar has an expansive population age structure with a significant proportion of the population in the younger cohorts.¹ In addition, over half the population in Zanzibar resided in rural areas (2015).³ Pemba particularly is predominately rural with over 80 percent of the population in rural zones; 43 percent of the population of Unguja is rural, a smaller but substantial proportion.³

The United Republic of Tanzania is classified as a lower middle-income country by the World Bank. Poverty levels have decreased in Zanzibar, falling from 34.9 percent to 30.4 percent in 2015.³ In Zanzibar, 10.8 percent are classified as having Extreme Poverty (2015).³ The average life expectancy at birth was 65.2 in 2012.¹ The literacy rate in Zanzibar for people aged 15 years and above is 83.6 percent.⁴ The majority of individuals in Zanzibar have a moderate level of education, with 68.4 percent of the population aged 5 to 14 years has attended primary education, and more than half the population of males and females have achieved secondary education (2015).⁴

History and Politics

While originally settled by Bantu-speaking Africans, Zanzibar has significant multi-cultural influences. Due to the archipelago's ideal location on the east coast of Africa for spice and slave trade, Zanzibar was influenced by Arab and Indian traders. By the 11th century, Islam was well-established in the region.⁵ In the 16th century and 17th century, Zanzibar was a part of the Portuguese empire until a forceful campaign of the Sultanate of Oman.⁶ Zanzibar was briefly the capital of the Sultanate of Oman until it split to Omani and Zanzibar Sultanates in 1856.⁶ Germans established control over Tanganyika (mainland Tanzania) while the British claimed Zanzibar as a protectorate.⁶ Slave trade in Zanzibar was ended in 1873 after pressure from the British government.⁵ Ultimately, Tanganyika (mainland Tanzania) came under British rule after Germany's defeat in World War I.⁶

In 1961, Tanganyika (mainland Tanzania) gained independence from Great Britain with Zanzibar following to gain independence in 1963.⁶ With independence from Great Britain, Zanzibar became a constitutional monarchy under the Sultan. In 1964, a popular uprising ousted the Sultan in Zanzibar, expelled many of the Arabs and Indians in the region, and established a republic.^{5,6} Later in the same year, the presidents of Zanzibar and Tanganyika signed a union to form the United Republic of Tanzania, allowing Zanzibar to retain considerable autonomy.^{5,6} Currently, Zanzibar is part of the United Republic of Tanzania with a separate President, Cabinet, Legislature, and Judicial System. Zanzibar is divided into 5 regions, with each region subdivided into several districts.

The official languages of the United Republic of Tanzania including Zanzibar is Kiswahili or Swahili, Kiunguja (name for Swahili in Zanzibar), and English (primary language of commerce and administration).⁶ Arabic is also widely spoken in Zanzibar.⁶

In Zanzibar, the predominant religion is Islam.⁶ The ethnic groups that comprise the majority are African, Arab, and mixed Arab and African.⁶

Government and Legal System

Regarding sociopolitical matters, the United Republic of Tanzania is one of the most stable in the region.⁶ Officially, Zanzibar retains a semi-autonomous government from the United Republic of Tanzania.¹ Zanzibar elects a president as a head of government for internal matters, separate from the national election of Tanzania.¹

Economy and Employment

After two decades of economic growth, Tanzania transitioned from low-income country status to lower-middle income country status in July 2020.⁶ The country leveraged its macroeconomic and sociopolitical stability, natural resources, and geographic location to achieve this growth.

The Gross Domestic Product (GDP) grew 5.1 percent in 2021 to 4750 billion TZS billion (2 billion USD).¹ The largest economic activities of Zanzibar are services and agriculture/forestry/fishing.¹ Within services, accommodations are the largest contributor to the GDP, suggesting that tourism is the largest contributor to the GDP of Zanzibar.¹

Tanzania received a net 2.19 billion USD in foreign aid and official development assistance in 2019.⁷

Physical and Technological Infrastructure

Compared to mainland Tanzania, Zanzibar has greater access to improved drinking water and improved toilet facilities. Nearly all households in Zanzibar (98%) use improved sources of drinking water including piped water, protected wells, and public taps/standpipes.⁸ However, 58% of households who reported using piped water, water from a well, or water from a bore hole reported lack of access to water for at least 1 day in the 2 weeks preceding the survey.⁸ Regarding sanitation, 59% of Zanzibari households use improved toilet facilities (e.g. flush/pour over toilets, piped sewer systems, septic tanks, pit latrines, ventilated improved pit latrines, pit latrines with slabs, and composting toilets), higher than both urban (35%) and rural (10%) mainland Tanzania.⁸

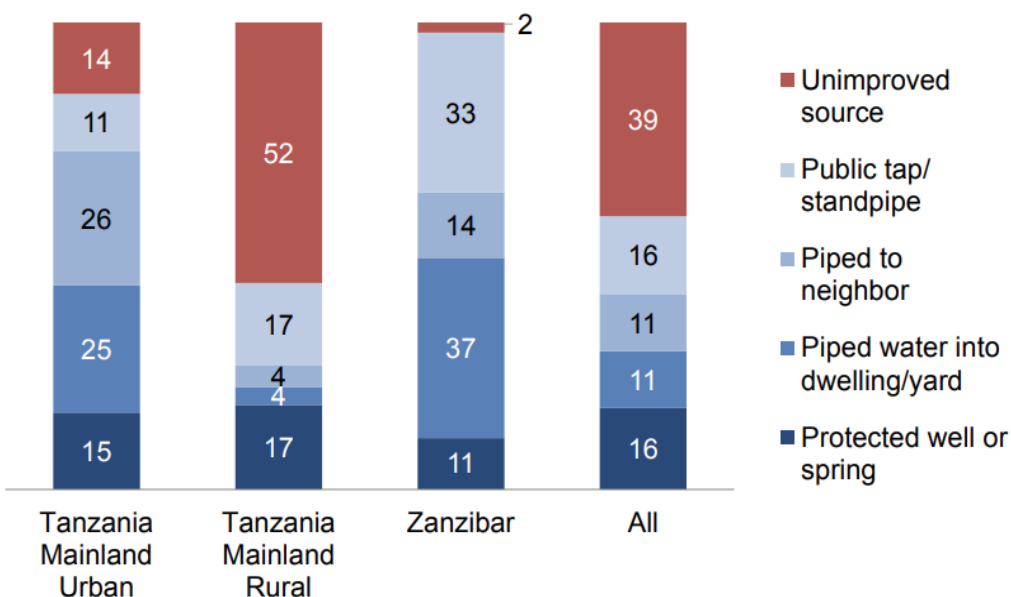
Access to electricity in Zanzibar is limited and unreliable. As of 2019, half of the population in Zanzibar does not have electricity.⁹ The energy sector in Zanzibar is still developing, and Zanzibar relies on power supply from mainland Tanzania connected through submarine cables.⁹ There are frequent unplanned power outages in Zanzibar, averaging 93 per month in Unguja and 54 per month in Pemba in 2018.⁹ Electricity access is a priority for Zanzibar, with the RGoZ objective of universal access to electricity by 2032.⁹

While access to electricity is limited, the use of mobile phones is widespread in Zanzibar. The vast majority of households in Zanzibar have a mobile phone (93.4%).⁸ However, non-mobile telephones are rare (1.2%).⁸

For transportation, the most common method amongst households in Zanzibar are bicycles (52%), motorcycle/scooter (15.9%), car/truck (7.8%), and animal drawn cart (2.2%).⁸

Figure 2.1 Household drinking water by residence

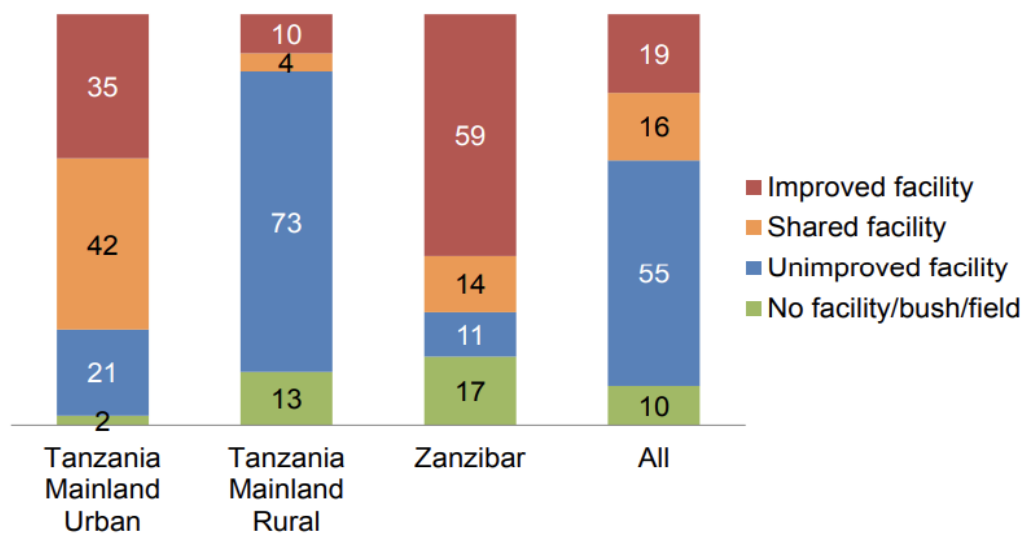
Percent distribution of households by source of drinking water



Source: Demographic and Health Survey Tanzania 2015-2016

Figure 2.2 Household toilet facilities by residence

Percent distribution of households by type of toilet facilities



Source: Demographic and Health Survey Tanzania 2015-2016

Regional Health Care in Zanzibar

Zanzibar Health Care Profile:

The life expectancy at birth in Zanzibar is 65.2 years, which is greater than the country-wide life expectancy of 62 years in Tanzania (2012).^{1,8} This is a significant improvement from the country-wide life expectancy of 51 years in 2002.^{1,8}

Childhood mortality rates have diminished but remain high in Tanzania within the last 25 years, decreasing from 92 deaths per 1000 live births (1991-1992) to 43 deaths per 1000 live births (2015-2016). Per the Tanzania Demographic and Health Survey 2015-2016, the neonatal mortality rate in Zanzibar is 28 deaths per 1000 live births (33 in Unguja; 19 in Pemba). The infant mortality rate is 45 deaths per 1000 live births (50 in Unguja; 37 in Pemba). The under 5 mortality rate is 56 deaths per 1000 (57 in Unguja; 54 in Pemba). The leading causes of death in children admitted to Zanzibar Hospitals under 13 years old in Zanzibar was severe acute malnutrition (18.4%), pneumonia (15.8%), septicemia (11.8%), other diarrheal disease (6.9%), and anemia (5.9%).¹⁰

The maternal mortality rate in Tanzania among women was 556 deaths per 100,000 live births in the 10 years preceding the 2015-2016 DHS data. In Zanzibar, the maternal mortality rate is lower at 155 per 100,000 live births.¹⁰ However, this is still significantly higher than the Sustainable Developmental Goal maternal mortality rate outlined of 70 per 100,000 live births by 2030.

The adult mortality rate in Zanzibar was 5.7 per 1000 in 2012. Non-communicable diseases are the largest contributor to death in Zanzibar in adults. The most common causes of morbidity in persons aged 13 and older were cerebrovascular accidents (CVA) (15%), hypertension (13%), diabetes (9%), heart failure (8%), and severe anemia (4%) and HIV/AIDS (4%).¹⁰ The most common causes of morbidity in Zanzibar were Upper Respiratory Tract Infections (15%), cough/cold (12%), skin disease (9.5%), UTI (8.4%), and ENT concerns (8.2%).¹⁰

The Ministry of Health has made strong efforts regarding communicable and tropical diseases. While malaria is a large concern on mainland Tanzania, the prevalence of malaria was greatly reduced in Zanzibar, from 22.9% in 2009/2010 to 3.1% in 2014/2015.⁴ The low prevalence of malaria is markedly different from prior years, where malaria was reported as the second most common illness in Zanzibar. In 2018, there were 5 confirmed cases of deaths due to malaria in Zanzibar.¹⁰ For commonly neglected tropic diseases, the Ministry of Health has launched a strategy to reduce Urinary Schistosomiasis, Lymphatic Filariasis, and Trachoma.¹⁰

2018		
Rank	Diagnosis/Conditions	No. and %
1	URTI	248,938(15.0)
2	Cough/Cold	199,124(12.0)
3	*Other skin disease	157,909(9.5)
4	UTI	139,531(8.4)
5	ENT Ear, Nose and Throat	136,263(8.2)
6	NCD	125,980(7.6)
7	**Other Diarrhoea disease	114,226(6.9)
8	Pneumonia	81,382(4.9)
9	Dental Diseases	40,997(2.5)
10	Conjunctivitis	25,330(1.5)
	Other Diagnosis	385,879(23.3)

Source: Ministry of Health, Zanzibar Health Bulletin 2018

Zanzibar Health Care Structure

The health care system is comprised of 275 health facilities, including publicly owned facilities (66.5%) and private health facilities (33.5%).¹⁰ The majority are on Unguja (58.5%) with the remaining on Pemba (41.5%). The public health facilities are organized into three levels of care: 1) Primary level including Primary Health Care Units and Centers, 2) Secondary level including District and Regional Hospitals, and 3) Tertiary level at Mnazi Mmoja Hospital. Mnazi Mmoja Hospital, the only tertiary referral hospital in the archipelago, has 776 beds.¹⁰

Table 1: Health Facilities Distribution by District, Ownership and Level, 2018

District	Public Health facilities							Total Public	Private Health facilities			Total Private	Total health facilities
	PHCU ²	PHCU ⁺³	Cottage ⁴ Hospital	District ⁵ Hospital	Regiona ⁶ Hospital	Referral ⁷ Hospital	Speciali ⁸ zed Hospital		Parastat ^{als}	Faith Based	NGOs		
Chakechake	11	3	1	1	0	0	0	2	1	2	6	9	27
Micheweni	10	3	1	0	0	0	0	0	0	1	3	4	18
Mkani	15	4	0	0	1	0	0	0	0	1	2	3	23
Wete	17	3	0	1	0	0	0	3	0	1	4	5	29
Pemba	53	13	2	2	1	0	0	5	1	5	15	21	97
Kaskazini A	10	3	1	0	0	0	0	0	0	1	3	4	18
Kaskazini B	11	3	0	0	0	0	0	0	1	1	2	4	18
Kati	21	4	0	0	0	0	0	2	1	1	5	7	34
Kusini	9	2	1	0	0	0	0	0	0	1	0	1	13
Magharibi A	6	1	0	0	0	0	0	5	0	1	11	12	24
Magharibi B	6	4	0	0	0	0	0	1	2	0	18	20	31
Mjini	6	4	0	0	0	1	2	4	1	3	19	23	40
Urguja	69	21	2	0	0	1	2	12	5	8	58	71	178
Zanzibar	122	34	4	2	1	1	2	17	6	13	73	92	275

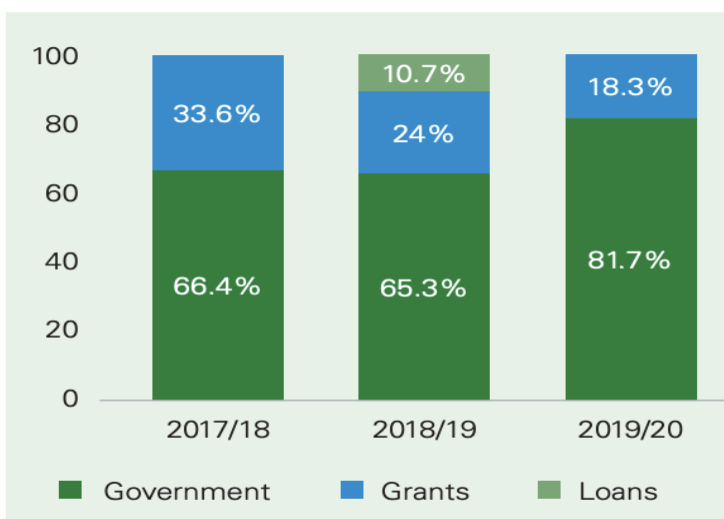
Source: Ministry of Health, Zanzibar Health Bulletin 2018

For the 1.6 million outpatient visits reported in 2018, public health facilities are more commonly utilized (75.8%) followed by private health facilities (19.2%), parastatal (3.4%), and faith based (1.5%).¹⁰ The overall outpatient utilization rate is stable at 1.1 consultations per person per year. In the same year, 6202 major procedures were performed.¹⁰

Regarding health care expenditures, health spending as a share of the GDP was at 2.4% in Zanzibar in 2020.¹¹ The WHO recommends 5-6% of the share of the GDP to be spent on health spending. The total health budget commitments by the House of Representatives in Zanzibar in the fiscal year 2019/2020 amounted to 109.9 billion TSh (47.2 million in USD using the 2023 conversion rate).¹¹

There has been a shift away from foreign aid to domestic resources for the health care budget in Zanzibar in recent years.¹¹ Key donors such as Global Fund and DANIDA have reduced their contributions and there have been declines in loans from the Arab Bank of Economic Development in Africa (BADEA), leading to an overall decline in budget for health in Zanzibar. As a response, government contributions cover 81.7% of the health budget in 2019/2020. Notably, 18% of the health budget is due to out-of-pocket expenditures in Zanzibar. This is larger than the World Bank threshold of 10% to suggest that households in Zanzibar may be impoverished due to out-of-pocket health care expenditures. The largest out-of-pocket expense was medications (61.6%) followed by diagnostic tests (31%). Over 90% of individuals aged 15-49 do not have any form of health insurance.⁸

Figure 9: Sources of finance for MoH between FY 2017/18 and FY 2019/20 (%)



Source: UNICEF calculations based on data from the Ministry of Finance, approved budget (various years)

Source: UNICEF, Health Budget Brief 2019/2020 – Zanzibar

Table 2: Financing agents and financing sources for FY 2017/18

Tanzanian shilling (TZS), Million	Government	Corporations	Households	NPISH	Rest of the world	Total	%
Ministry of Health	37,759.3					37,759.3	36.4
Other ministries and public units (belonging to central government)	10,072.5					10,072.5	9.7
Insurance corporations	1,649.5	682.8	151.5			2,483.8	2.4
Health management and provider corporations	7.8	105.4				113.2	0.1
Corporations (Other than providers of health services)	23.0	196.4				219.4	0.2
Non-profit institutions serving households (NPISH)				1,146.8	32,552.2	33,699.0	32.5
Households			19,442.4			19,442.4	18.7
TOTAL	49,512.0	984.6	19,593.9	1,146.8	32,552.2	103,789.5	
Share (%)	47.7	0.9	18.9	1.1	31.4		

Source: NHA 2017/2018

Source: UNICEF, Health Budget Brief 2019/2020 – Zanzibar

Zanzibar has a severe shortage of health care workers, worse in remote and poorer regions. In 2021, there were 1521 nurses, 371 clinical officers, 310 medical doctors, and 64 specialist doctors in Zanzibar.¹ This equates to 1.19 medical staff per 1000 individuals, significantly lower than the WHO estimate of at least 2.5 medical staff per 1000 for adequate medical coverage.¹²

Regional Radiology Profile

Radiology Workforce and Training and Professional Representation

In 2021, there were 28 radiology/medical imagers in Zanzibar, a reduction from 41 medical imagers in 2020.¹ Per conversations with the head of the Radiology Department at the only tertiary center in Zanzibar, there are 6 radiologists currently in Zanzibar: 5 in Unguja and 1 in Pemba. Mnazi Mmoja currently has 25 staff members in the Department of Imaging Services, consisting of 5 radiologists. The referral hospital has three sections: x-ray and CT scan, ultrasound, and MRI.¹³ There are no medical physicists at Mnazi Mmoja.

There are few academic centers in Tanzania that offer opportunities for radiology training.² Radiologists must complete 5 years of medical school and a 4-year radiology residency, upon which they receive a Masters in Medicine (MMed).² Radiologists may subspecialize in Interventional Radiology; however, there are no opportunities for formal training in other subspecialties within Tanzania.³

There are no Masters in Medicine (MMed) in Radiology or radiology technologist degree programs in Zanzibar.

RAD-AID in Zanzibar

RAD-AID began its partnership with Mnazi Mmoja Hospital in Zanzibar in 2022. After the transition to the radiology department to management by NSK Hospital Ltd in January 2023, RAD-AID has continued supporting radiology in Zanzibar. The hospital has a 1.5T Siemens MRI, a 128 slice Siemens CT scanner, a MindRay digital XR, and 3 ultrasound devices.

In January 2023, RAD-AID completed a trip to perform the Radiology Readiness Assessment, the Tele-Ultrasound Readiness Assessment, and the PACS Readiness Assessment. In addition, radiologists and radiology technologists assisted with didactic and hands-on trainings for staff at Mnazi Mmoja. RAD-AID plans to continue to support in all imaging modalities present at Mnazi Mmoja Hospital.

To perform the Radiology Readiness Assessment, several Mnazi Mmoja Referral Hospital employees were interviewed. Through these discussions, we collected the following information. Mnazi Mmoja Hospital contains the only MRI in Zanzibar. There is only one additional public hospital with a CT scanner, Abdullah Mzee on Pemba Island. There are other private hospitals who have CT, x-ray, and ultrasound capabilities, notably Global Hospital in Stone Town. There are no facilities in Zanzibar which offer fluoroscopy, mammography, nuclear medicine studies, or bone densitometry. In addition to 5 radiologists at Mnazi Mmoja Hospital in Unguja and 1 radiologist at Abdullah Mzee in Pemba, radiology in Zanzibar is supported by two radiologists from China contracted by the People's Republic of China. The agreement between the two regions has provided radiology support to Zanzibar for several decades.

Conclusion

Radiology in Zanzibar is centered around the public tertiary center of Mnazi Mmoja Hospital. NSK aims to increase the quality of reports, decrease the turnaround time for reports, and utilize PACS to connect other government facilities to Mnazi Mmoja Hospital's radiology department. The radiology department at Mnazi Mmoja is understaffed relative to its radiology needs, and it lacks key imaging modalities: mammography, fluoroscopy, and PET.

NSK has requested assistance from RAD-AID to assist with specific goals: 1) additional case review from radiologists and 2) quality assessments and training for technologists. Recruiting volunteers (both radiologists and radiology technologists) who are able to provide on-the-ground training for Zanzibar is important to continued support of radiology in Zanzibar.

References

1. Office of the Chief Government Statistician. Zanzibar in Figures 2021. Published online August 2022.
2. National Statistics Office of Tanzania. Population and Housing Census. Published online October 2022.
3. World Bank Group. Zanzibar Poverty Assessment. Published online October 26, 2017.
4. Zanzibar Household Budget Survey 2014/15. :232.
5. Investment Promotion Authority. History Of Zanzibar. Zanzibar Investment Promotion Authority. Accessed December 24, 2022. <https://www.zipa.go.tz/history-of-zanzibar/>
6. Tanzania. In: *The World Factbook*. Central Intelligence Agency; 2022. Accessed December 24, 2022. <https://www.cia.gov/the-world-factbook/countries/tanzania/>
7. Tanzania. World Bank. Accessed December 25, 2022. <https://www-worldbank-org.proxy1.library.jhu.edu/en/country/tanzania>
8. Ministry of Health CD Gender, Elderly and Children MoHCDGEC/Tanzania Mainland, Ministry of Health - MoH/Zanzibar, National Bureau of Statistics - NBS/Tanzania, Office of Chief Government Statistician - OCGS/Zanzibar, ICF. *Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016*. MoHCDGEC, MoH, NBS, OCGS, and ICF; 2016. <http://dhsprogram.com/pubs/pdf/FR321/FR321.pdf>
9. World Bank Group. *Zanzibar Energy Sector Transformation and Access Project*. Accessed December 26, 2022. <https://projects.worldbank.org/en/projects-operations/procurement-detail/OP00145743>
10. Ministry of Health Zanzibar. Zanzibar Health Bulletin 2018.
11. UNICEF. Health Budget Brief 2019/2020 – Zanzibar.
12. Glossary | DataBank. Accessed January 12, 2023. <https://databank.worldbank.org/metadataglossary/health-nutrition-and-population-statistics/series/SH.MED.PHYS.ZS>
13. Mnazi Mmoja Referral Hospital. Accessed January 23, 2023. <https://mmh.go.tz/index.php/directorates/diagnostic-services>