UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT,
GENDER, ELDERLY AND CHILDREN
(MOHCDGEC)

NTLP ANNUAL REPORT
2020

United Republic of Tanzania

Ministry Of Health, Community Development, Gender, Elderly And Children (MOHCDGEC)

NTLP Annual Report 2020

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Acknowledgement

The 2020 National Tuberculosis and Leprosy report highlights performance in 2020. The performance has been progressively improving however the gains have been interrupted by the corona virus disease (COVID 19) pandemic.

On behalf of the National Tuberculosis Program, I thank all of our stakeholders who are the reasons for the registered results. Foremost we would like to thank the coordinators and officers in the councils and regions teams, under the supervision of the directorate of health and welfare of the PORALG, for their remarkable work especially during the COVID- 19 outbreaks. It is during this period that the program's resilience was revealed. In most of the regions we witnessed the TB and Leprosy coordinators (RTLCs and DTLCs) being tasked as head of case management for the COVID19 response, however the repurposed officials continued providing leadership and guidance to maintain TB and leprosy services. Together with the TB survivors, community health workers and volunteers with their respective civil society organisations, were able to provide means of reaching people in the community for services. To them, we owe the success story registered during this period and which was acknowledged by the WHO. (2021 WHO Global TB report). We also thank the implementing and development partners who provided support to the regional and councils teams. To name the few: GLRA, EGPAF, Delloiite/FHI 360, THPS, PATH, amref Health Africa Tanzania, MDH under the Global fund to fight AIDS, Tuberculosis and Malaria grant, USAID and CDC/ PEPAR.

Last but not the least to the officers and coordinators at the TB and Leprosy Central Unit for their tireless work ensuring results are monitored and registered. Most of all we acknowledge the leadership from our seniors, the Director of Preventive Services, the Chief Medical officer, Permanent Secretary and hon Minister of Health Community Development Gender Elderly and Children.

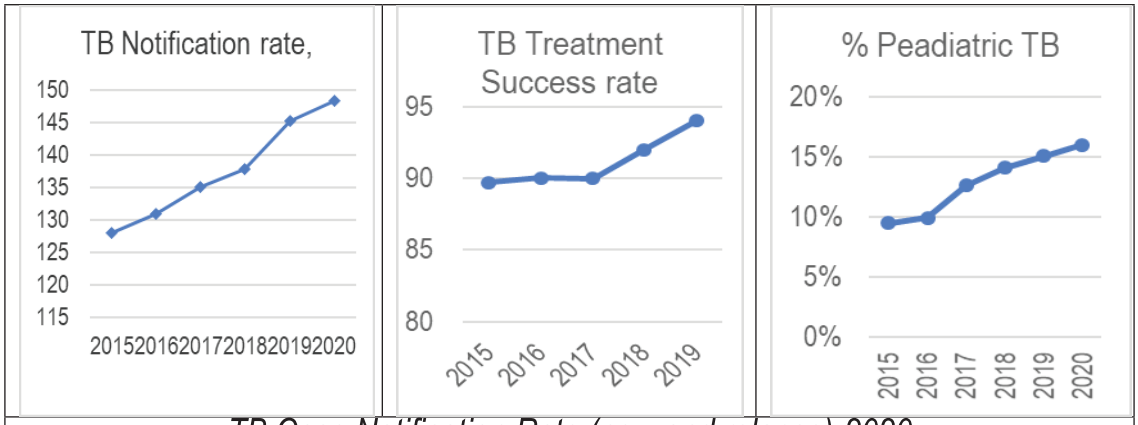
To all NTLP partners and stakeholders, we say thank you for your continued support and collaboration in the mission to end TB and Leprosy burden in our country

Dr Riziki Kisonga

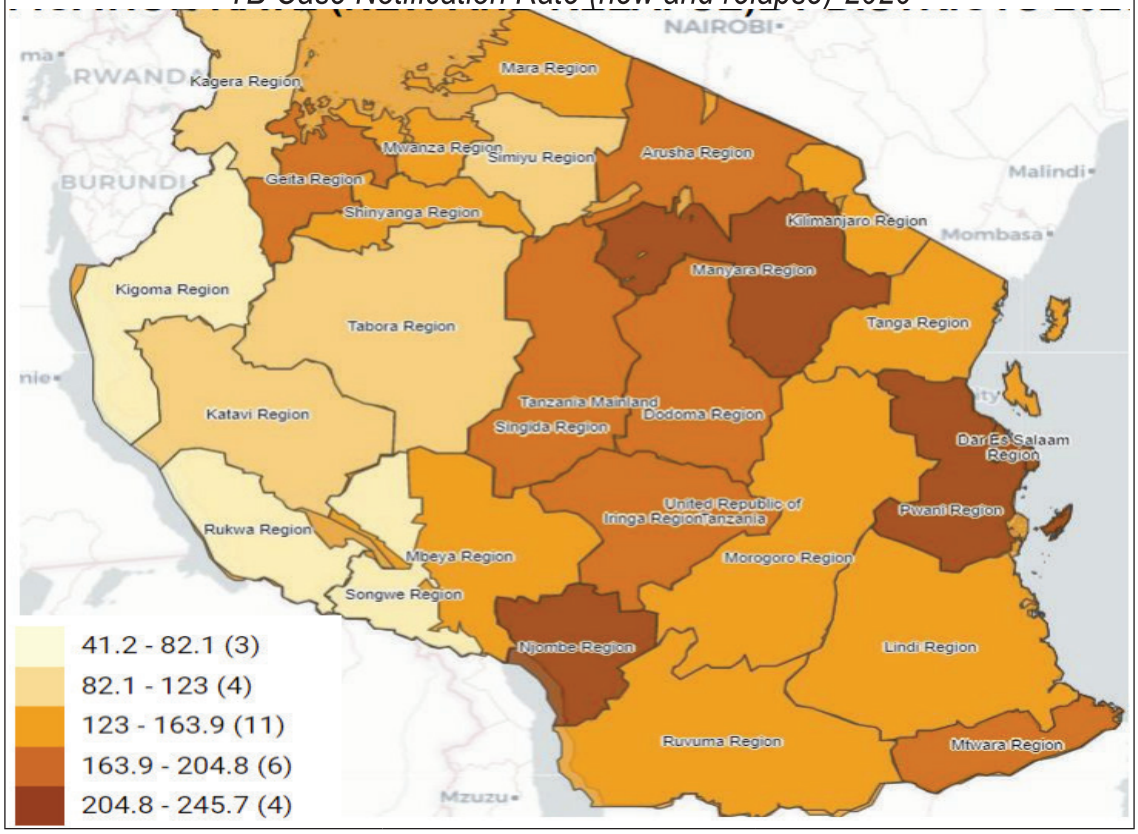
Programme Manager
National Tuberculosis and Leprosy Programme
Ministry of Health, Community Development, Gender, Elderly and Children

November 2021

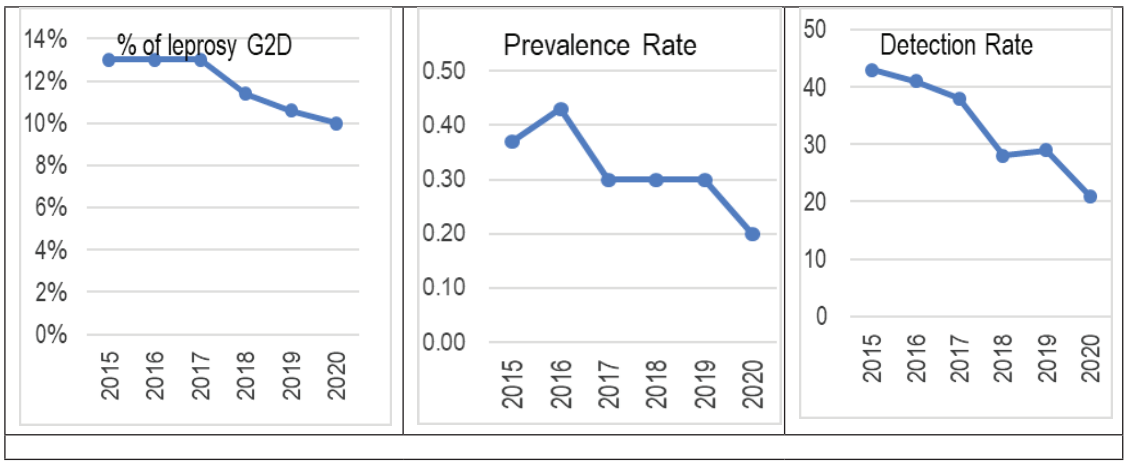
TB RESULTS AT GLANCE



TB Case Notification Rate (new and relapse)-2020



LEPROSY RESULTS AT GLANCE



GENERAL BACKGROUND

Demographic and socio-economic profile

The United republic of Tanzania population was 57,637,628 projected based on 2012 national census. Female make up is 51% (29,408,029) of the total while male is 49% (28,229,599). The proportion of children under 5 year of age was 17% (9,851,027) and older ages 55 and above years of age was 7% (3,841,504). The annual growth rate is estimated at 2.7% from 2002 to 2012 census. The per capita Income (GDP per capita) is US $ 1,122.1 and agriculture is still a major source of livelihood for majority of the population in Tanzania

Summary of Health Services:

The health care delivery system in the country is well established with more than of 8,458 health facilities comprising of 369 hospitals, 926 Health centres and 7,163 dispensaries. The Government is the major provider of health services owning and/or run 74% of the health facilities. TB control is fully integrated into the primary health care services. 41% (3,500) of the facilities provide TB treatment services and 1,613 (19%) provide TB diagnostic services that includes almost all hospitals and Health centres. There are 1,500 (18%) health facilities that provide leprosy treatment services and have a leprosy unit registers. These health facilities are known as MDT centres.

Data from Health Information Management System (HMIS) shows that communicable diseases are still the major cause of morbidity and mortality in the country driven by HIV epidemic with national prevalence of 4.6% in the population aged 15-49 years.

COVID 19 Pandemic and impact on TB and Leprosy Control

Tanzania Mainland notified the first case of COVID-19 on the 16th March 2020 A total of 509 COVID-19 cases and 21 deaths were reported until 29th April 2020.In respond to the outbreak all schools were closed, unnecessary movements were restricted and the use of mask were mandated. The schools were closed for four months after which period they resumed to work under other personal preventive measures such as using masks, handwashing and use of sanitizers.

The outbreak and its measures to contain it brought disruptions to TB and Leprosy services such as diagnostics and treatment. The disruptions included

- reduced health capacity to continue provide services: TB and Leprosy coordinators repurposed for COVID 19 response, TB clinic re located, TB diagnostics such the GeneXpert machines relocated
- less willingness and ability to seek care: due to restricted movement, fear, panic over the COVID 19, risks of going to health facilities during the pandemic
- Stigma associated with similarities in the symptoms related to TB and COVID-19

The most obvious impact on TB disruptions caused by the COVID1-19 pandemic is a drop in percentage increase of people newly diagnosed with TB and reported in 2020 4.2 compared with 8.3% in 2019. Following significant increases between 2017 and 2019 there were a fall of increase by 3% compared to the increase between previous years.

Early analysis had shown impact of notification of the DS TB and much on DRTB with fairly unaffected community contribution (community referrals) signifies the role of community-

based activities which took lead during the outbreak

In leprosy:

Mitigation of the COVID-19 impacts were very initially instituted under the leadership of the Program in collaboration with its partners. A guide was officially instituted through a secular detailing key steps for the regional and Councils to follow in order to mitigates the effects.

Summary of NTLP activities

The year 2020 marked the end of implementation of the fifth National TB and Leprosy Strategic Plan (2015-2020). The five-year plan translated the global and national goals including the Tanzania Health sector strategic Plan four's goals of reduction of suffering and deaths caused by communicable diseases, in this case; Tuberculosis and Leprosy. The Plan had set targets to set pace towards ending of Leprosy in 2030 and TB in 2035. The main intervention implemented in 2020 includes:

i. The scale up of the quality improvement in TB case detection in more health facilities from a total of 939 by Dec 2019 to about 1,300 health facilities in 2020,

ii. Procurement and distribution of 542 microscopes to the primary health care levels, implementation of the integrated sample referral system to ensure access to TB investigation,

iii. Community involvement by providing training to community volunteers, EX-TB groups and traditional healers who in collaboration with RHMTs and CHMTs conducted targeted active case finding campaigns. Special campaigns were conducted in the mining areas of Geita, Mara and Manyara, cross border interventions at Rusumo, Tarekea, Tunduma and Sirari and systematic TB care system was introduced in 21 high volume prisons.

iv. Leprosy contact tracing and provision of post exposure prophylaxis was done in Lindi and Morogoro while contact tracing for affected families was conducted in Tanga and Geita. Support to patients with need of protective wears was given to all patients in the country

v. The Government has developed an action plan to support leprosy control interventions by integrating into available resources support

vi. A new Tuberculosis and Leprosy Strategic Plan (2020 – 2025) was developed through a people centred framework (PCF) following) following the External NTLP external review conducted under supervision of WHO African region office

Financial Support

The Ministry of Health Community Development, Gender, Elderly and Children through the National Tuberculosis and Leprosy Program (NTLP) received approximately USD 12,208,599.00 through government consolidated funds, external grants and loans in year 2020.

Government resources channelled through the program for program management and support the health system and infrastructure maintenance as well as staff remuneration at all levels.

Direct cash was received through grants supports from The Global Fund-NFM grant, United State Agency for International Development, German TB and Leprosy Relief Association (GLRA) grant and World Health Organization (WHO) grant as detailed below.

Table 1: NTLP Source of Funds 2020

No.	Source	Amount (US $)
1	Domestics	12,208,599.00
2	Global Fund	12,067,181.00
3	USAID	6,500,000.00
4	Other source	2,809,840.00
	Total	33,585,620.00

HUMAN RESOURCE DEVELOPMENT

The Programme is composed of both permanent and contractual employees at the central unit (TLCU) and regional and district coordinators who are under the PO RALG, although at facility level services are integrated in the general services, there clinician and nurses selected to be focal point for provision and supervising TB and leprosy activities.

Staff establishment

In this reporting year there were 44 staffs at central level and 31 Regional TB and Leprosy coordinators. There were 208 DTLCs and 92 TB/HIV Officers. Three staff retired, one transferred within the Ministry and one new officer joined the program.

Capacity building:

Trainings continued to be an integral part in ensuring quality delivery of services to the community. During this year trainings were conducted to the healthcare providers on TB case detection (Quality Improvement in TB case detection), Collaborative TB/HIV Management activities, Comprehensive HIV/AIDS Management, Paediatric TB and TB/HIV management and MDRTB management. In addition, the Regional and District TB Coordinators were oriented on the use of the improved electronic DHIS2-ETL system, the Orientation also involved Regional HMIS Focal Persons and selected Districts HMIS Focal Persons. In 2020, a number of trainings were conducted to the healthcare workers in various discipline including AFB Microscopy and GeneXpert to capacitate healthcare workers towards improving quality of TB Training for AFB microscopy was conducted to 260 participants from fourteen (14) regions which were Arusha, Mwanza, Dodoma, Lindi, Pwani, Mbeya, Tabora, Ruvuma, Shinyanga, Tanga, Geita, Singida, Morogoro and Dar es Salaam.

In 2020, three trainings were conducted on GeneXpert MTB/RIF implementation to GeneXpert users and Super-users. A total of 68 super-users received a refresher training on troubleshooting, service and maintenance of the GeneXpert machines countrywide. 173 laboratory staff received a basic user training on practical use of GeneXpert technology and sample referral.

TUBERCULOSIS AND LEPROSY

Tuberculosis case Finding in 2020

A total of 85,597 cases of all forms of TB were notified in 2020, which is an increase of 4.2% or 3,432 cases compared to the year 2019 where 82,166 cases of TB were notified. Among the TB cases notified, new cases were 83,129 (97%) and previously treated TB cases were 2,468 (3%). The new and relapse TB cases (Incident TB) were 84,791 (99%).

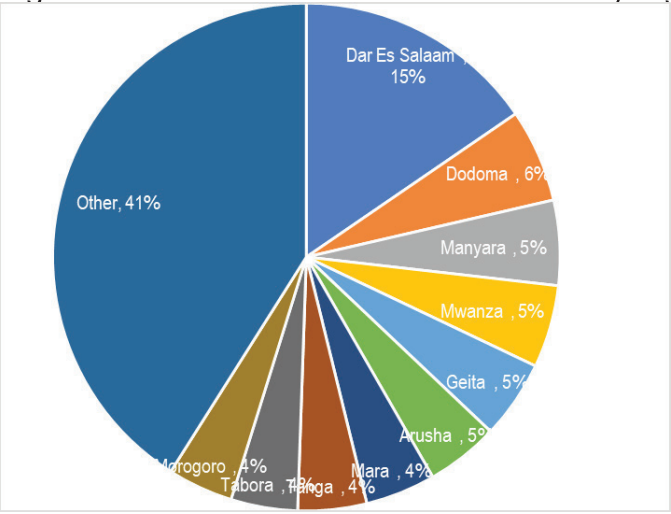
Table 2: TB notification in 2019 and 2020 by TB classification groups.

Indicators	2019		2020		Change	
	Cases	%	Cases	%	num.	%
All forms	**82,165**		**85,597**		**3,432**	**4.2**
New Cases	79,540		83,129			
- Pulmonary bacteriological confirmed TB cases	27,705	34	28,760	34	1,055	3.8
- Pulmonary clinically diagnosed TB cases	34,960	43	36,724	43	1,764	5.0
- Extra-pulmonary (all forms)	16,875	21	17,645	21	770	4.6
Total	**79,540**	**97**	**83,129**	**97**	**3,589**	**4.5**
Previously treated						
- Relapse	1,668	2	1,662	2	-6	-0.4
- Failure	115	0	128	0	13	11.3
- Return after lost to follow up	345	0	340	0	-5	-1.4
- others	497	1	338	0	-159	-32.0
Total	**2,625**	**3**	**2,468**	**3**	**-157**	**-6.0**
Total new and relapse cases	**81,208**	**99**	**84,791**	**99**		

Tuberculosis notification by regions

Dar es Salaam city has remained a major contributor of TB cases notification in Tanzania. Its contribution makes 15% of all cases notified in the country, which has been decreasing compared 22% in 2015. Dar es Salaam and other nine regions contributed 59% of all cases notified in the country, other regions are: Dodoma (6%); Manyara (5%); Mwanza (5%); Geita (5%); Arusha (5%); Mara (4%); Tanga (4%); Morogoro (4%); and Tabora (4%).

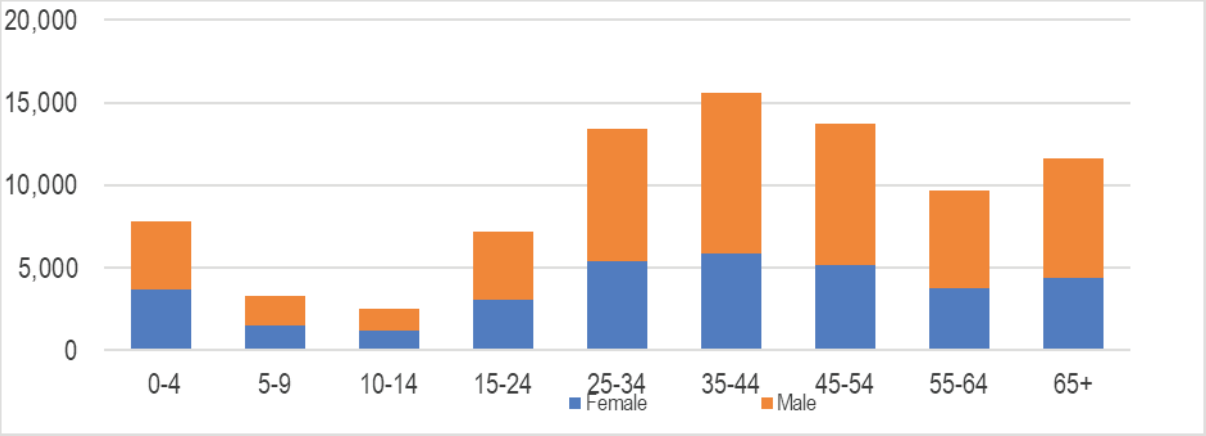
Figure 1: Distribution of TB cases notified by regions in 2020



Tuberculosis case notifications disaggregated by sex and age

The age-sex distribution of the new and relapse TB cases notified in 2020 shows that 50,654 (60%) cases were males and 34,134 (40%) females with a sex ratio of over 1:1.5. The number of children aged 0–14 years old notified among new and relapse cases were 13,589 (16%). Age-sex distribution of the new and relapse cases also shows that, the highest number of TB cases notified was in the age groups of 25-34 years and 35-44 years for both males and females as

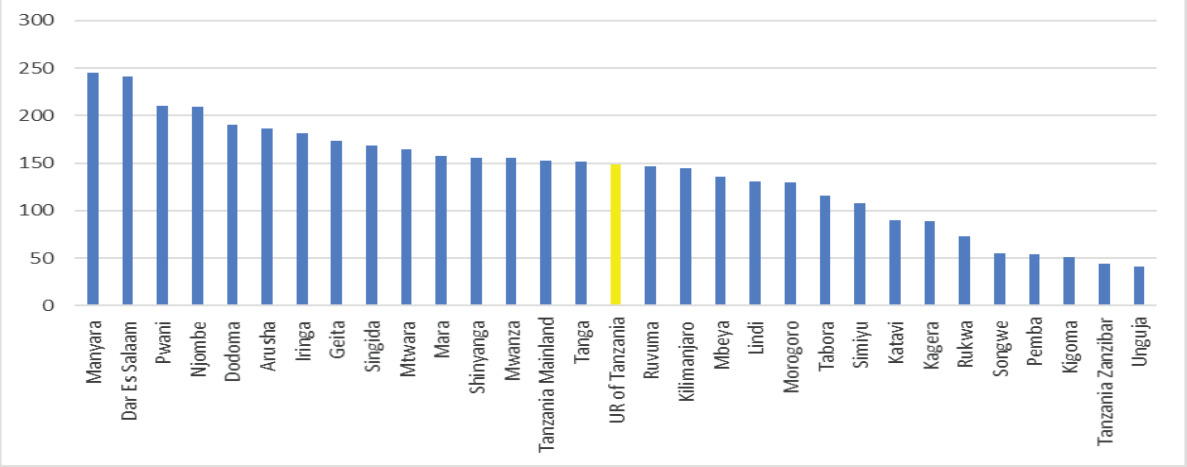
Figure 2: Age and Sex distribution of new and relapse TB cases notified in 2020



Tuberculosis notification rate

The notification rate of new and relapses TB cases for 2020 was 148 cases per 100,000 population of which is above the set target of 145/100,000. This performance is higher than the 2019 which was 145 per 100,000 population. Manyara region for the first time has overtaken Dar es Salaam as region with the highest TB notification rates in the country at 246 cases per 100,000 while Unguja has the lowest rate of41 cases per 100,000.

Figure 3: Notification Rate of new and relapse TB Cases notified by regions in 2020

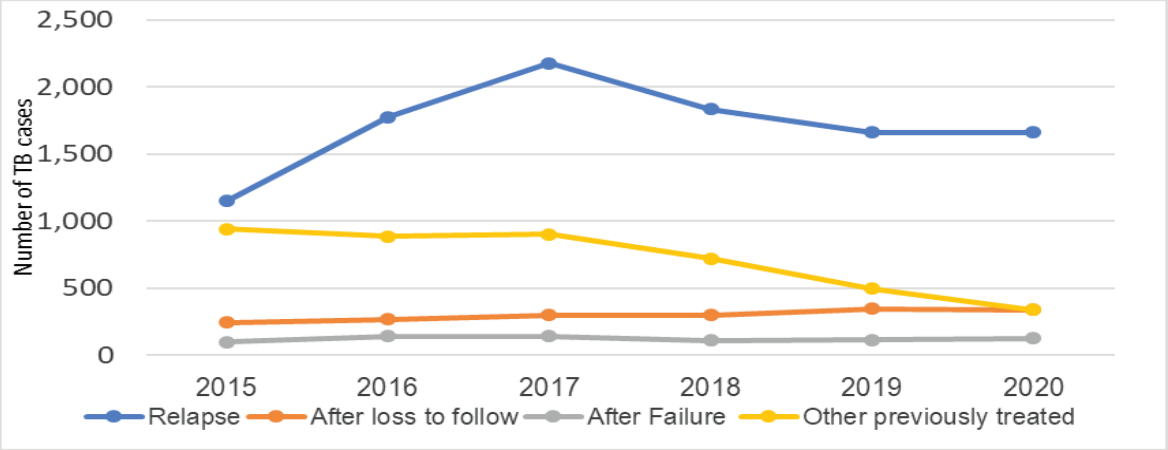


Previously treated cases of Tuberculosis

Previously treated TB cases notified in 2020 were 2,468 or 3% of all TB cases notified in the country. Majority of the previously treated TB cases were relapse cases 1,662 or 67%. The other groups were 128 treatments after failure patients, 340 treatment after loss to follow up and other previously notified TB patients were 338. The general trends show a decrease in

the number of previously treated TB cases as well as proportion among the all notified TB cases.

Figure 4: Trends of Previously Treated TB patients notified from 2015 to 2020



Tuberculosis Treatment Outcome for Cases Notified in 2019

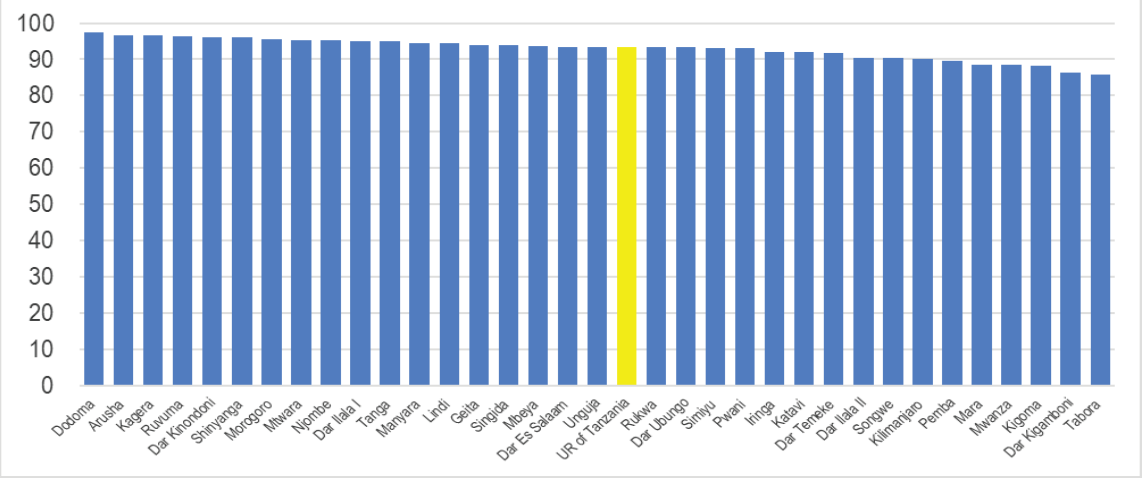
Treatment of new and relapse TB cases

The treatment outcome available for the 79,592 (99%) of new and relapse TB cases notified 2019 which also excludes patients that started second-line TB treatment or RR/MDR-TB treatment in year 2019. Total of 76,832 TB cases were cured or completed treatment which led to 94% treatment success rate.

The regions treatment success rate ranges from 86% in Tabora to 98% in Dodoma region, with 15 regions achieving a rate equal or above the national average of 94%.

Further analysis of the TB cohort shows that, the number of TB cases did not complete treatment for various reasons were 4,108 (5.1%). Among those did not complete treatment: 93(0.1%) cases failed treatment; 3,232 (4.0%) died during their treatment and 783 (1.0%) lost to follow-up during treatment. Below is figure shows treatment success rate of individual regions.

Figure 5: Tuberculosis Treatment Outcome of New and Relapses TB cases notified in 2019



Treatment outcome of previously treated TB patients notified in 2019

In 2019, 921 previously treated TB cases excluding the relapse were notified and initiated treatment. 895 (97%) patients their treatment outcomes were available at time of reporting. Among the evaluated cases: 813 (88%) were treated successfully; 3 (0.3%) failed treated while 40(4%) cases died while still on TB treatment. Number of TB cases lost to follow up were 39 (4%) of all previously treated cases. Table 3 below summarizes the treatment outcomes for each category of the re-treatment case:

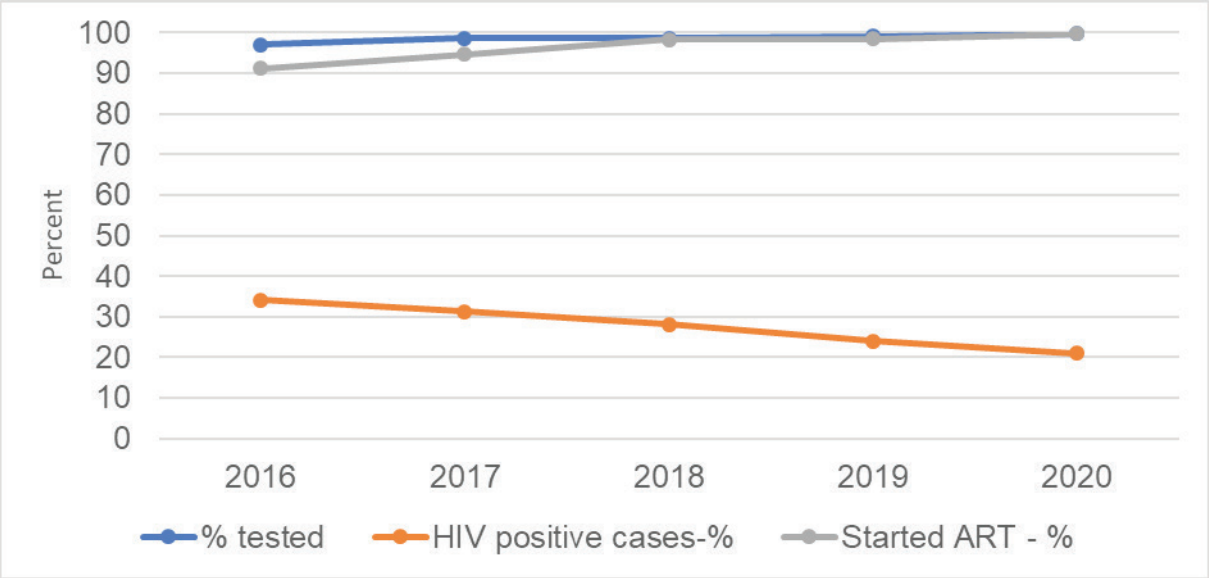
Table 3: Treatment outcome of previously treated TB patients notified in 2019

Patient groups	*No. notified*	*Treatment outcomes*							
		cured	*Treatment completed*	*Failed*	*Died*	*Lost to follow up*	*not evaluated*	*treatment success*	*Treatment success - %*
Treatment after Failure patients	*96*	*61*	*26*	*1*	*0*	*7*	*1*	*87*	*91%*
Treatment after loss for follow up patients	*340*	*117*	*179*	*1*	*14*	*24*	*5*	*296*	*87%*
Others previously treated TB Patients	*485*	*31*	*399*	*1*	*26*	*8*	*20*	*430*	*89%*
Total	*921*	*209*	*604*	*3*	*40*	*39*	*26*	*813*	*88%*
% of outcome		*23%*	*66%*	*0.3%*	*4%*	*4%*	*3%*	*88%*	

TB/HIV Services and management of Co-morbidities

The percentage of tuberculosis had their HIV test results recorded at the time of notification among new and relapse TB cases has remained high at 100% for the years 2020, which is the same to the country target of testing 100% of patients who are being detected with TB. Among those who were tested for HIV, 21% (17,787) cases were found to be co-infected with HIV. The co - infection rate has decreased compared to that of 2019 which was at 24%. 99% (17,753) of the co-infected cases were initiated on ART, at both TB and Care and treatment clinics. The initiation of Co-trimoxazole Preventive Therapy (CPT) has declined to 94% (16,764) from 95% (18,244) in previous year 2019. Figures 6 below summarizes the proportion and trend of TB/HIV indicators in the country from 2016 to 2020

Figure 6: Trend of TB Patients Counselling and Testing for HIV, Initiated CPT and ART: 2016 – 2020.



Regional Performance on Collaborative TB/HIV Services

HIV counselling and testing is an entry point for accessing HIV care, treatment and preventive services. In 2020 the national average of TB patients who were tested for HIV was 100% mean reached national target of 100%. The majority of the regions (23 out of 26) have almost reached the national target of 100%. ART uptake is still at 95% of all positive TB HIV patients with the four regions achieving the target of 100%. These are Mtwara, Kagera, Shinyanga and Arusha. Figure 7 and 8 below shows HIV services performance of TB patients for each region

Figure 7: HIV Testing among TB Patients in 2020 by regions

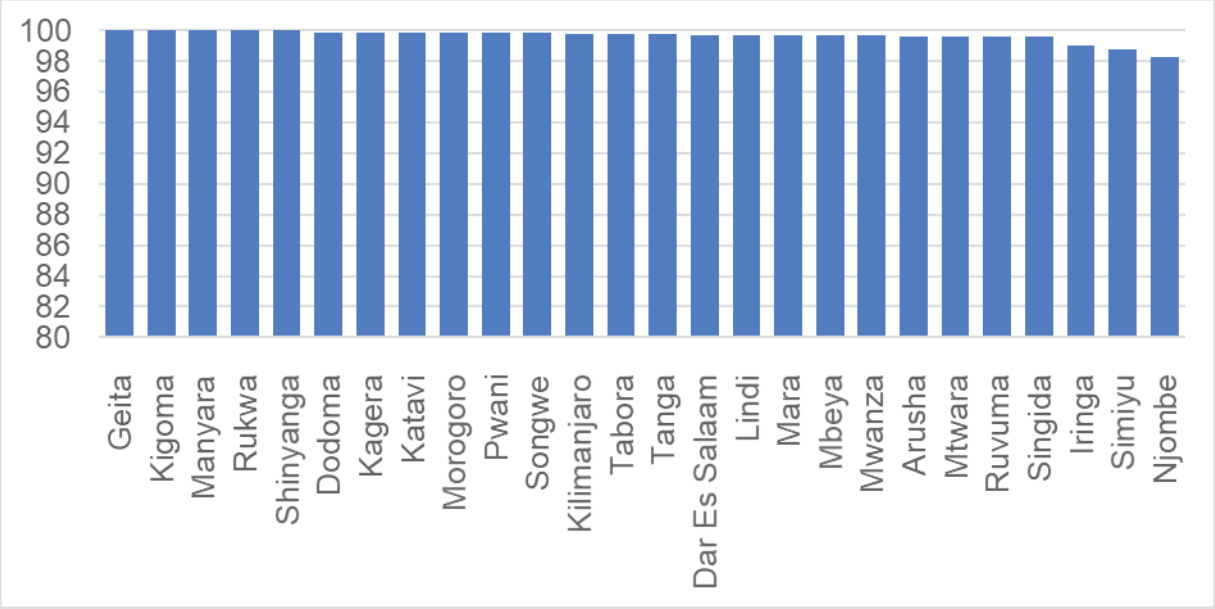
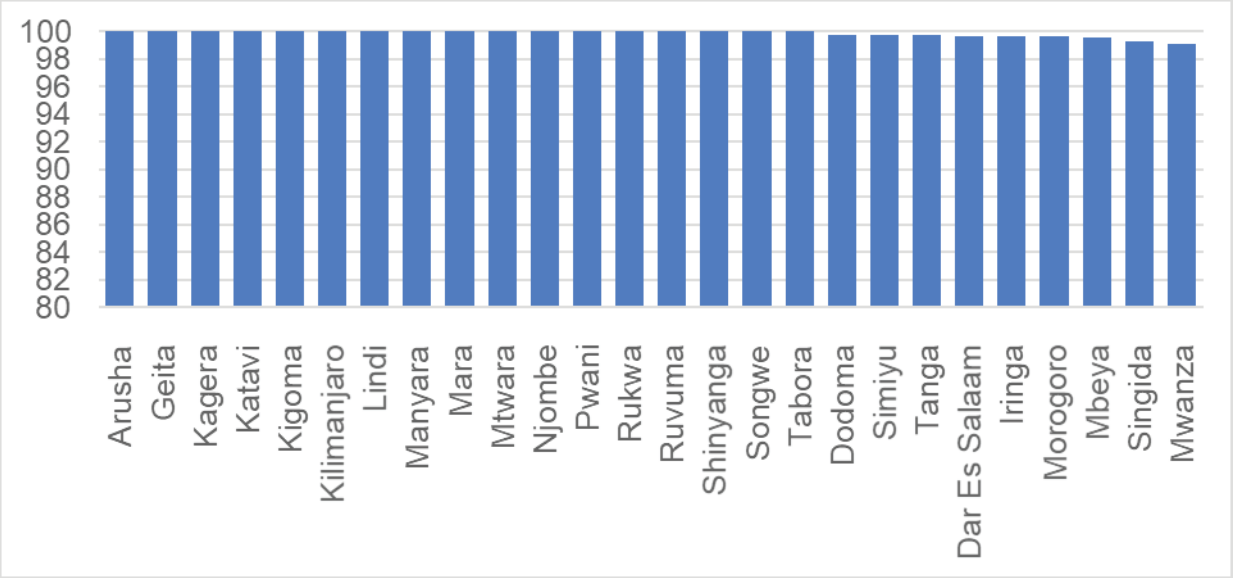


Figure 8: Proportion of HIV Positive TB Patients on ART In 2020 by regions



Multi Drug Resistant Tuberculosis (MDR-TB):

Tanzania is still a low DR-TB burden country according to the drug resistance survey conducted in 2017/2018 with results showing overall prevalence of MDR -TB of 1.2%. The burden is not evenly distributed among types of TB patients where the prevalence among new and previous treated TB patients is 0.97% and 4.6% respectively. The MDR-TB burden has remained stable for the past decade as shown in the 2006/2007 survey the prevalence among new and previous treated TB patients was 1.1 and 3.9% respectively. Decentralization of MDRTB services has continued where by 34 new facilities have enrolled patients to make a total of 177 health facilities which have managed to initiate DR-TB patients into treatment covering all regions in the country. The country has introduced and scaled up of all oral MDR TB regimens both shorter and longer. Capacity building to Health care workers is the key to successful introduction of the all-oral regimens this have been accomplished through form PMDT trainings, weekly online PMDT sessions through MDR -TB ECHO, mentorship and Supportive supervision.

MDR-TB Notification and Enrolment to treatment

Tanzanian TB and Leprosy Program (NTLP) scaled up new diagnostics, particularly GeneXpert from 70 in 2015 to 259 machines installed in 224 sites by end 2020. This resulted in increased RR/MDR-TB notification and enrolment into treatment. RR/MDR-TB notification increased from 178 in 2015 to 423 patients in 2020 the trend on detection and enrolment of RR/MDR-TB patients into treatment are displayed in figure 9. This notification is 71% of the year 2020 target which was 600 RR/MDR -TB patients. The notification varies from region to region where Dar es salaam notified largest proportion of 71 (17%), followed by Kagera 23 (6%) Tabora 22 (5%), Dodoma 21(5%), Mwanza 19 (5%), Simiyu and Shinyanga 16 (4%), Mtwara and Tanga 15 (4%). Regions with the lowest notification included Mara 4 (1%), Iringa 4 (1%), Unguja 4(1%), Rukwa 3 (1%) and Pemba 1 (0%). The graph below figure 10 shows regional distribution of RR/MDR-TB patients enrolled to treatment.

Figure 9: Trend on detection and enrolment of RR/MDR TB patients 2015 - 2020

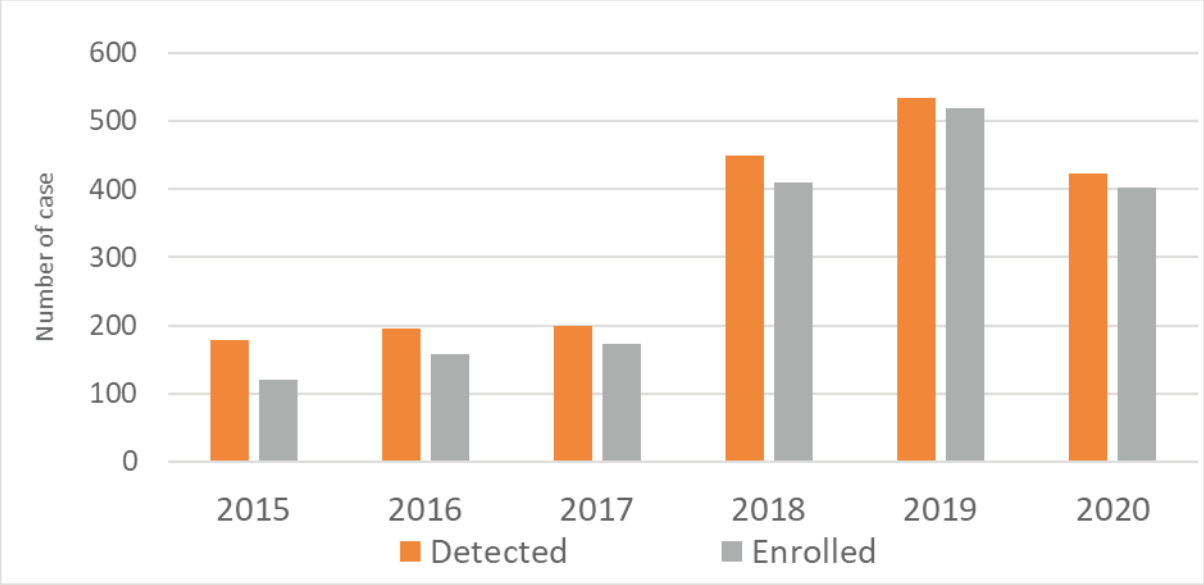
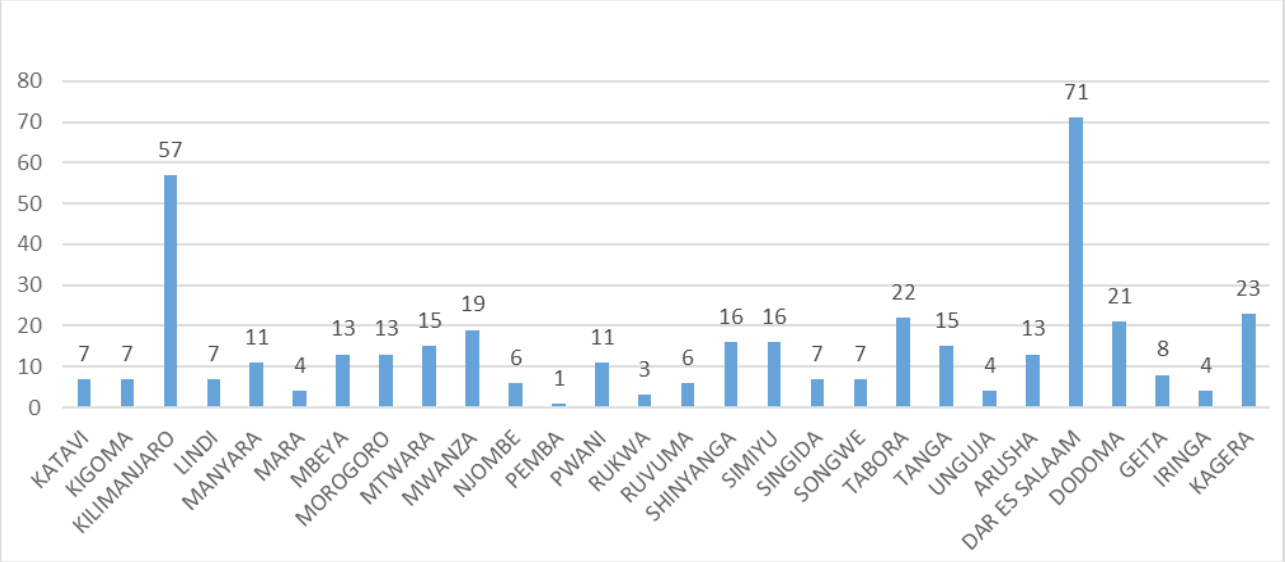


Figure 10: Regional distribution of DR-TB patients started treatment: 2020

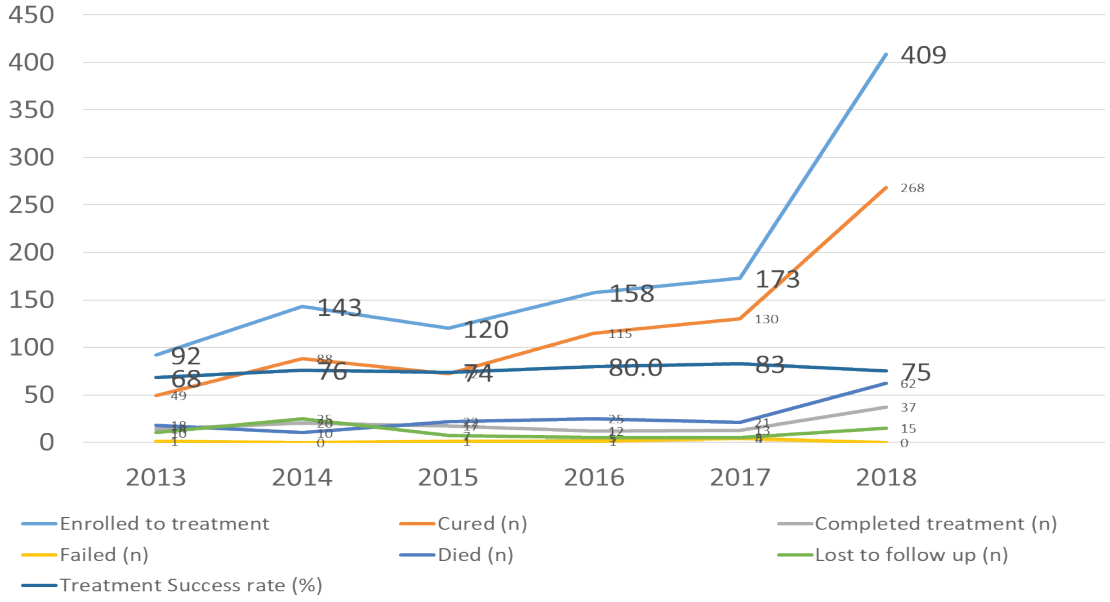


MDR TB Treatment Outcome

In 2018 409 RR/MDR-TB patients enrolled to treatment among these males were 270 (66%), and 151 (39.6%) patients were HIV coinfected. Paediatric RR/MDR-TB patients were 7 (2%). Of all 409 patients enrolled to treatment in 2018, 305 (75%) were successfully treated (cured + treatment completed) this is below the target which is 90%.

Those with unfavourable outcome include; 62 (15 %) patients died; 15(4%) patients lost to follow up. A review of trends of enrolment and treatment outcomes from 2009 (figure 11) shows overall increase in number of RR/MDR TB patients enrolled to treatment with average treatment success rate of 77%.

Figure 11: MDR TB Treatment Outcome 2009 - 2018



Pediatric TB

Childhood TB notifications 2020

In 2020, a total of 13,590 (16%) of the new and relapse TB cases notified were children under the age of 15 years, which is increase compared to year 2019 and above the national target of 15%. Among the notified; 7,794 (57%) were children under the age of 5 years, while 1,482 (24%) cases were age group of 5 -9 years and 1,177 (19%) were children in the age-group 10 – 14 years.

IPT provision to Children

All children younger than 5 years household contacts of pulmonary bacteriological confirmed TB cases are investigated for TB. Children with signs and symptoms suggestive of active TB are registered and treated with a full anti-TB course. If there are no signs of active TB, the children are put on preventive treatment with isoniazid for six months.

In the year 2020, a total of 12,967 children under 5 years of age household contacts of bacteriological confirmed TB cases were provided with IPT. The number initiated IPT is 62% of the eligible children, which is 59% increase as compared to those initiated IPT in the years 2019.

Quality Improvement model in TB case detection

Quality Improvement model (QI TB model) is a set of approaches that address barriers to TB diagnosis and case notification, making health facilities be responsive to systematic TB screening to all attendees at all entry points. The initiative was formulated basing on the Tanzania Quality Improvement Framework (TQIF). The model facilitates readiness of health facilities to efficiently manage clients resulting from all approved interventions and local initiatives gearing to improve TB diagnosis in among those all-in need of TB care and support.

This framework ensures that TB disease is being ruled out in among all patients and clients seeking medical care at health facilities through a “Provider-Initiated TB Screening” (PITS)

approach. The purpose is to give opportunity to every individual visiting health facility to undergo TB screening with an ultimate goal of increasing overall TB case detection and break TB transmission chain in the country.

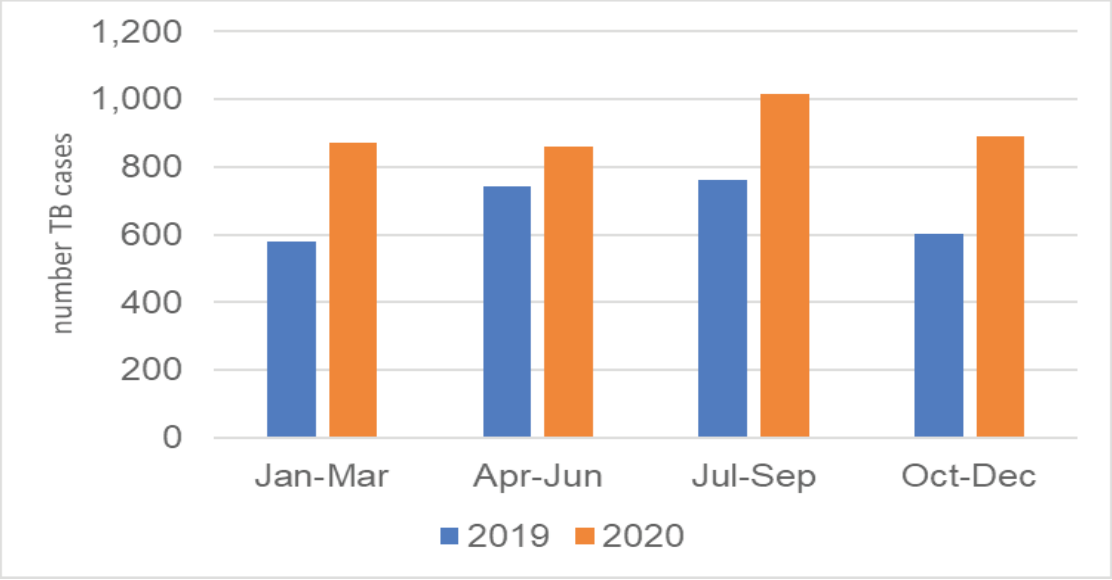
Progress in scale-up and implementation of QI model

During this year, we witnessed increase number of health facilities in each council that are implementing the model to reach more people, strengthening involvement of quality improvement teams of health facilities and enhancing integration. Similarly, we continue to observe a steady increase of number of TB patients detected from 82,166 in 2019 to 85,603 in 2020. This makes an additional of over 23,400 new TB cases in the past five years of implementation of QI TB model in Tanzania and superseded 2020 TB notification targets by over 2000 cases.

We have noted that, all key health supporting development partners, namely USAID, CDC and GFATM and their corresponding implementing partners (IPs) working in areas of TB, TB/HIV and HIV care and support have included some QI TB model entities in their strategic interventions. At the same time, all councils have increased a number of health facilities implementing a model from 4 to over 15.

- All councils in the Tanzania mainland implementing QI TB model since mid-2019
- Global Fund was supporting 12 regions, USAID Boresha Afya 10 regions and the remaining 4 regions are under a new partner of THPS through USAID Uhuru projects
- It has also been reported that, all QI TB model implementing health facilities had a functional TB focal person in place
- Supervision and mentorship reports show that, all 64 councils supported by amref Health Africa receiving GF share have established WIT TB in their health facilities to coordinate intensified TB case finding in their catchment areas. These teams are being headed by the TB focal person of a respective health facilities.
- Incompleteness of PTR, inconsistence in follow up of tests' results and delayed notification of enrolled patients remain key challenges to improved TB case management and intensified case finding.

Figure 12: TB notification for Tabora region 2019 and 2020



Key Challenges

- Slow uptake by some health facilities and IPs, incompleteness of presumptive TB registers
- Varying levels of implementing QI package by the different Implementing Partners
    - Few Health Facilities and providers trained
    - Low levels of support for Health facilities coordination meetings and mentorship trips to implementing providers
- Low levels of using generated data from their registers at health facilities, district and regional levels

LEPROSY SERVICES

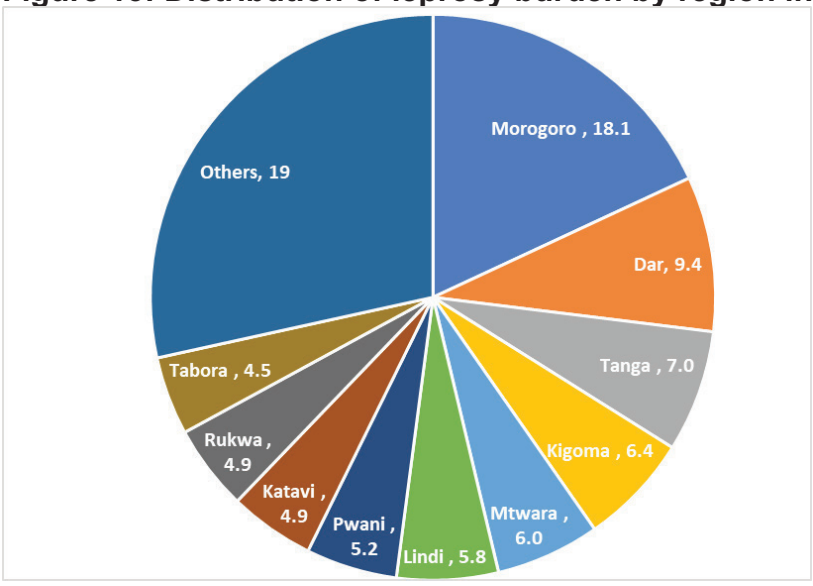
Leprosy Case Notification

Tanzania continues to witness progressive decrease of leprosy cases notified in each year. During this reporting year 2020, there were 1,279 cases; of whom 1,208 (94%) were new leprosy cases and retreatment cases were only 71 (5.6%) of all reported cases of leprosy.

Table 4: Leprosy cases reported in 2019 and 2020

Leprosy Classification	2019		2020		Change	
	Cases	%	Cases	%	Cases	%
All forms	1,709		1,279		-430	-25
New cases						
- MB	1,517	92	1,138	89	-379	-25
- PB	97	8	70	5	-27	-28
Total	1,614	97	1,208	94	-406	-25
Re-treatment						
- Relapse after MDT	56	1.3	47	3.7	-9	-16
- Relapse after DDS	12	0.3	5	0.4	-7	-58
- Return after default/others	27	1.4	19	1.5	-8	-30
Total	95	3	71	5.6	-24	-25

Figure 13: Distribution of leprosy burden by region in 2020



The 2020 data shows that, over 72% of all notified leprosy cases were reported from only 10 regions of Morogoro (18.1%), Dar es Salaam (9.4), Tanga (7%), Kigoma (6.4%), Mtwara (6%), Lindi (5.8%), Pwani (5.2%), Katavi (4.9%) and Rukwa (4.9%), of Tanzania mainland. Unguja of Isles accounted 8.9% of all cases as shown in the figure above. The rest of other regions accounted for only 19% of all reported leprosy cases in the country in 2020.

New leprosy cases notified in 2020

In 2020, a total of 1,208 new leprosy cases were detected in the country with annual notification rate (case detection rate) of 2.6/100,000. The data shows that Morogoro and Dar es Salaam regions plus Unguja continue to notify highest number leprosy cases in the

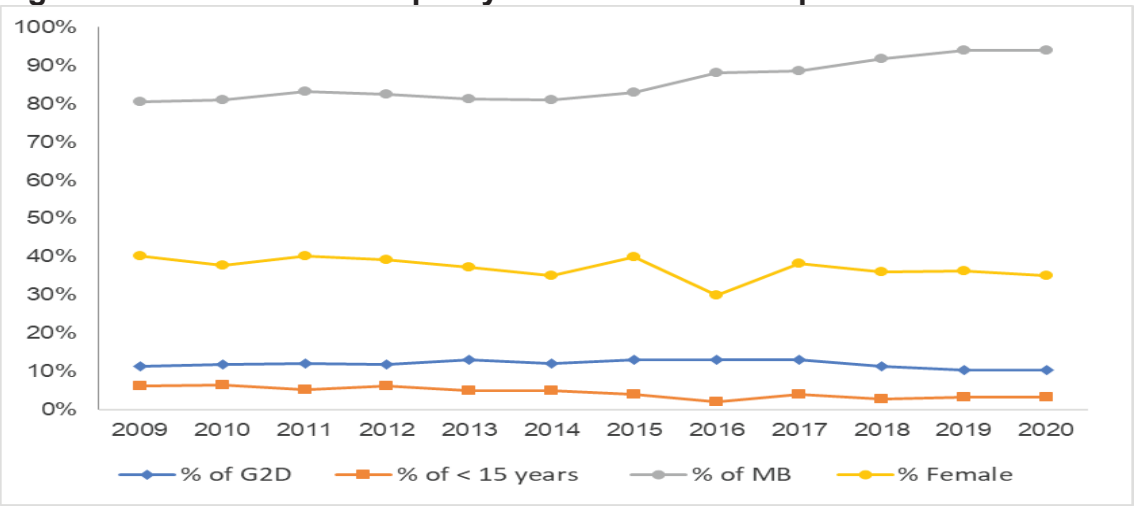
country. Arusha, Kilimanjaro, Simiyu and Songwe and Njombe regions reported only two leprosy cases and Manyara did not detect any cases. Over 80% of new leprosy cases were reported from only Unguja and other 10 regions in the mainland.

Among the new cases notified, 1,138 (94%) were MB. Females were 419 (35%) giving a female to male ratio of 1:1.9 suggesting that being male continues to remain a risk factor. The number of children notified among the new cases continue to decline and this reporting year was only 41 (3%). The number of new leprosy cases notified with disability grade II also went down to 117 (10%) as compared to 166 in 2019. Table 5 below summarizes indicator data on new leprosy cases notified in 2020 by regions and those having disability grade II according to WHO classification.

Table 5: Leprosy detected and the % key Indicators by regions 2020

Region	All leprosy	New cases		MB		Female		Children		G2D	
	cases	number	percent	number	percent	number	percent	number	percent	number	percent
Dar Ilala II	13	27	208%	27	100%	3	11%	0	0%	0	0%
Dar Ilala MC	28	13	46%	13	100%	8	62%	0	0%	1	8%
Dar Kigamboni MC	0	0		0		0		0		0	
Dar Kinondoni MC	35	31	89%	31	100%	7	23%	2	6%	7	23%
Dar Temeke MC	46	38	83%	38	100%	13	34%	1	3%	5	13%
Dar Ubungo MC	5	6	120%	6	100%	1	17%	0	0%	0	0%
Dar Es Salaam	**127**	**115**	**91%**	**115**	**100%**	**32**	**28%**	**3**	**3%**	**13**	**11%**
Arusha	1	1	100%	1	100%	1	100%	0	0%	0	0%
Dodoma	12	12	100%	12	100%	7	58%	0	0%	1	8%
Geita	52	52	100%	51	98%	10	19%	1	2%	4	8%
Iringa	8	7	88%	7	100%	2	29%	0	0%	3	43%
Kagera	15	11	73%	11	100%	3	27%	0	0%	3	27%
Katavi	59	59	100%	59	100%	17	29%	0	0%	1	2%
Kigoma	78	77	99%	76	99%	27	35%	0	0%	11	14%
Kilimanjaro	1	1	100%	1	100%	0	0%	0	0%	0	0%
Lindi	74	70	95%	65	93%	30	43%	2	3%	3	4%
Manyara	0	0		0		0		0		0	
Mara	7	7	100%	4	57%	4	57%	0	0%	0	0%
Mbeya	4	2	50%	2	100%	0	0%	0	0%	0	0%
Morogoro	236	218	92%	208	95%	70	32%	5	2%	12	6%
Mtwara	73	72	99%	70	97%	32	44%	0	0%	2	3%
Mwanza	33	30	91%	29	97%	10	33%	0	0%	9	30%
Njombe	2	1	50%	1	100%	0	0%	0	0%	1	100%
Pwani	65	63	97%	56	89%	23	37%	4	6%	2	3%
Rukwa	59	59	100%	59	100%	27	46%	2	3%	3	5%
Ruvuma	58	52	90%	52	100%	16	31%	1	2%	4	8%
Shinyanga	27	25	93%	23	92%	7	28%	1	4%	0	0%
Simiyu	2	2	100%	1	50%	1	50%	0	0%	0	0%
Singida	7	6	86%	6	100%	4	67%	0	0%	2	33%
Songwe	1	1	100%	1	100%	0	0%	0	0%	0	0%
Tabora	58	54	93%	54	100%	12	22%	0	0%	16	30%
Tanga	87	84	97%	84	100%	30	36%	2	2%	17	20%
Mainland	**1,146**	**1,081**	**94%**	**1,048**	**97%**	**365**	**34%**	**21**	**2%**	**107**	**10%**
Pemba	21	20	95%	17	85%	7	35%	0	0%	5	25%
Unguja	110	107	97%	73	68%	47	44%	20	19%	5	5%
Zanzibar	**131**	**127**	**97%**	**90**	71%	**54**	43%	**20**	16%	**10**	8%
Tanzania	**1,277**	**1,208**	**95%**	**1,138**	**94%**	**419**	**35%**	**41**	**3%**	**117**	**10%**

Figure 14: Trends of new leprosy cases indicators reported: 2009 – 2020



However, the trend of new leprosy cases detected for the past 10 years shows tremendous decline country wide as is displayed in the figure 16 below.

Figure 16: Trends of new leprosy cases notified: 2009 – 2020

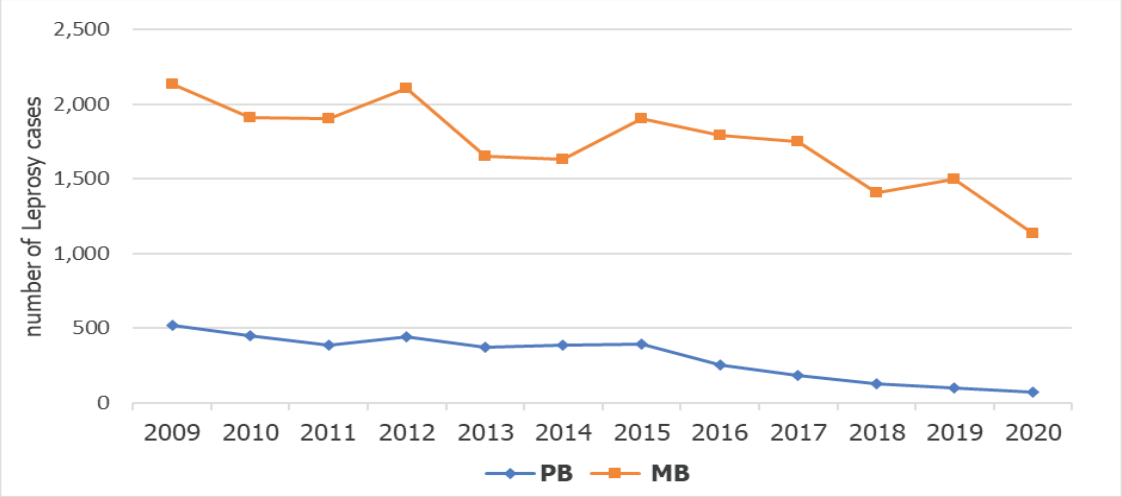
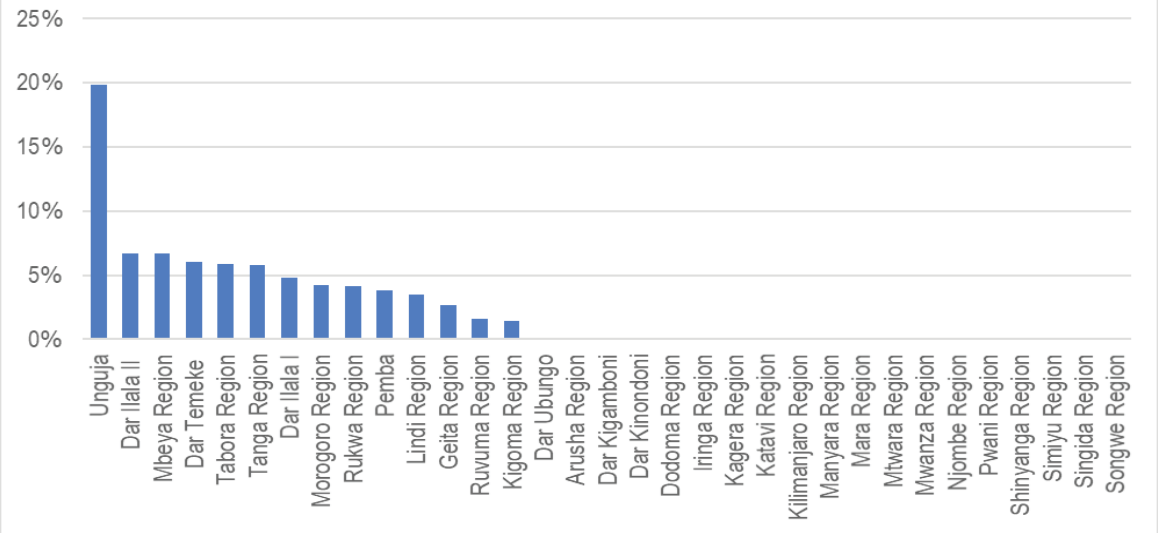


Figure 17: Proportion of children among new leprosy cases across regions in 2020



During the year 2020, the proportion of disability grade 2 among newly detected leprosy cases has remained higher around 10%, however, there has been a gradual decrease in rates as the number of people getting disability due to leprosy goes down as shown in figure 15.

Figure 18: Trends of new leprosy cases with G2D per 1,000,000 population reported: 2009 – 2020

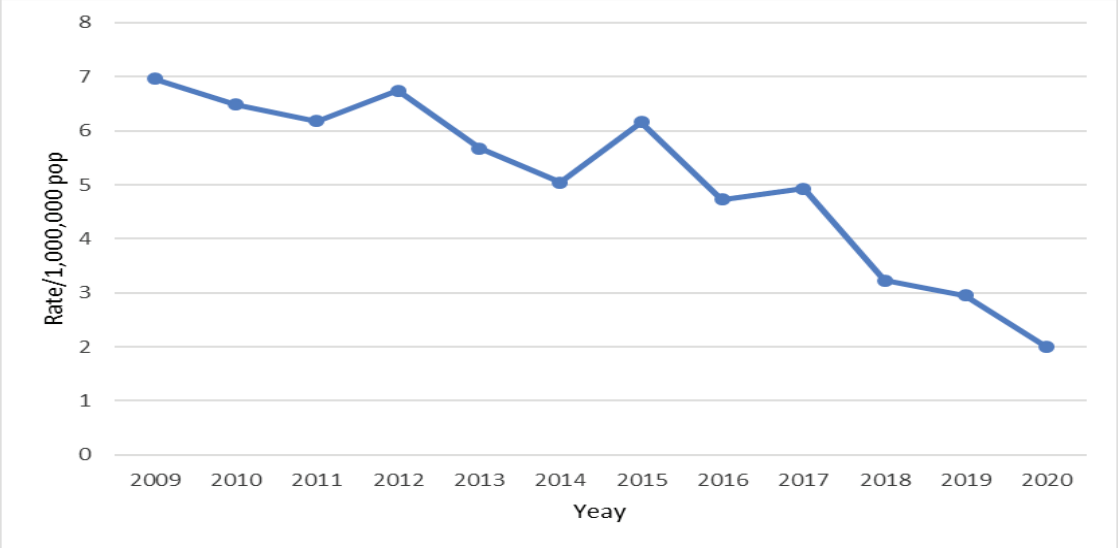
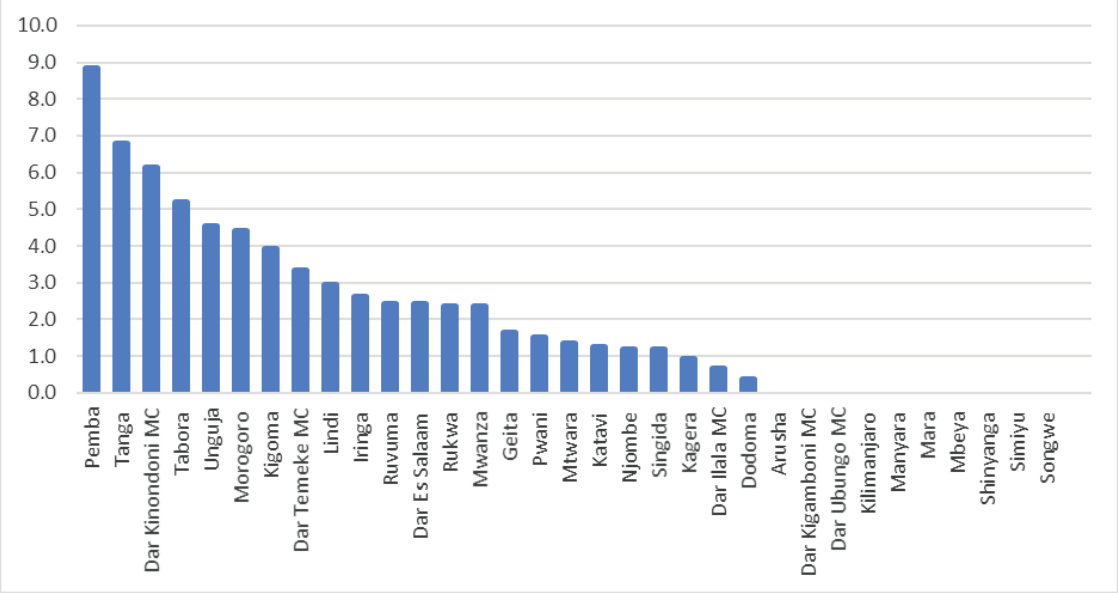


Figure 19: Grade II Disability Rate per 1,000,000 population by regions in 2020

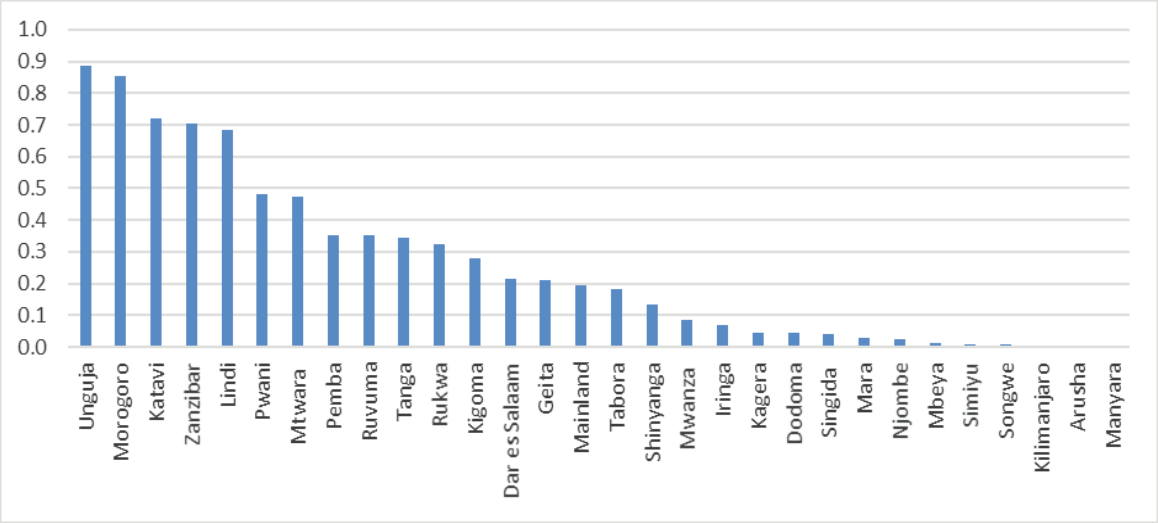


When we compare regions contributing higher proportions of G2D in the country; Pemba Island, Tanga, Kinondoni MC in Dar es Salaam and Tabora continue to experience higher proportions above the national average. G2D is preventable; these regions should increase efforts to avoid the unnecessary suffering of the people they are serving in their respective areas. Prevention of disability interventions which include early leprosy case detection, proper management of reactions, regular assessments of people affected by leprosy (PALs) and keeping well supervised patients.

Registered Leprosy prevalence

Leprosy elimination in the United Republic of Tanzania was achieved in 2006 and the prevalence of leprosy has progressively showed a steady decline. The registered leprosy prevalence rate keeps declining lowly at 0.2/10,000 population as for the last year 2020. Only, two regions of Mainland Tanzania and Unguja islands had higher prevalence than the elimination target of less than 1 case per 10,000 population. The below figure shows prevalence per region.

Figure 20: Rate of registered leprosy cases by region reported in 2020



In 2020 there were 13 districts with prevalence rates higher than 1/10,000. These endemic districts were yet to achieve elimination targets and came from 12 different regions as shown in table 6 below. Most of districts in Lindi are still endemic and remain at high risk of increased disease burden. The number of endemic districts has decreased from 21 in 2019, and the trend is attributed to renewed efforts to conduct screening campaigns which have also contributed to increased case detection. This can therefore be interpreted as good progress towards leprosy elimination in respective districts.

Table 6: Endemic Councils with Leprosy Prevalence Rate Greater than or 1/10,000 Population In 2020

S/No.	Region	Councils	Population	Total new cases	Registered at end of years	Detection rate	Prevalence rate
1	Katavi	Nsimbo DC	183,500	19	19	103.5	1.0
2	Katavi	Tanganyika DC	255,822	25	25	97.7	1.0
3	Kigoma	Kigoma MC	289,879	28	29	96.6	1.0
4	Lindi	Liwale DC	108,785	14	14	128.7	1.3
5	Morogoro	Ifakara TC	131,834	52	55	394.4	4.2
6	Morogoro	Morogoro DC	346,376	45	43	129.9	1.2
7	Morogoro	Mvomero DC	382,658	69	70	180.3	1.8
8	Mtwara	Nanyumbu DC	175,467	21	20	119.7	1.1
9	Pwani	Kibiti DC	122,057	13	13	106.5	1.1
10	Ruvuma	Tunduru DC	354,026	36	36	101.7	1.0
11	Tanga	Korogwe TC	90,459	14	17	154.8	1.9
12	Tanga	Mkinga DC	138,926	19	19	136.8	1.4
13	Unguja	Kusini Unguja	138,589	44	36	317.5	2.6

Leprosy treatment outcome

Treatment outcome of PB leprosy

The treatment outcome of PB leprosy cases who started treatment in 2019 shows that 105 cases were notified, 89 (85%) completed treatment, 4 (4%) lost to follow up and only a case died (1%) during treatment course. However, 11 (10.5%) patients were not evaluated and reported not to be traceable as shown in table 7 below.

Table 7: Treatment outcome of PB leprosy reported in 2019

Region	cases notified in 2019	Treatment Completed	Died	Out of Control	Transferred Out	Evaluated	% Completed treatment
Dar Ilala II	0	0	0	0	0	0	0%
Dar Ilala MC	0	0	1	0	0	1	0%
Dar Kigamboni MC	0	0	0	0	0	0	0%
Dar Kinondoni MC	0	0	0	0	0	0	0%
Dar Temeke MC	1	1	0	0	0	1	100%
Dar Ubungo MC	0	0	0	0	0	0	0%
Dar Es Salaam	1	1	1	0	0	2	100%
Arusha	0	0	0	0	0	0	0%
Dodoma	0	0	0	0	0	0	0%
Geita	2	0	0	0	0	0	0%
Iringa	0	0	0	0	0	0	0%
Kagera	1	1	0	0	0	1	100%
Katavi	0	0	0	0	0	0	0%
Kigoma	1	2	0	0	0	2	200%
Kilimanjaro	0	0	0	0	0	0	0%
Lindi	6	11	0	0	0	11	183%
Manyara	0	0	0	0	0	0	0%
Mara	6	1	0	0	0	1	17%
Mbeya	1	0	0	0	0	0	0%
Morogoro	1	4	0	0	0	4	400%
Mtwara	1	1	0	0	0	1	100%
Mwanza	6	8	0	0	0	8	133%
Njombe	0	0	0	0	0	0	0%
Pwani	7	1	0	0	0	1	14%
Rukwa	6	7	0	0	0	7	117%
Ruvuma	3	1	0	0	0	1	33%
Shinyanga	3	1	0	0	0	1	33%
Simiyu	1	1	0	0	0	1	100%
Singida	4	0	0	0	0	0	0%
Songwe	1	0	0	0	0	0	0%
Tabora	7	1	0	0	0	1	14%
Tanga	3	6	0	0	0	6	200%
Mainland	61	47	1	0	0	48	77%
Pemba	1	2	0	0	0	2	200%
Unguja	43	40	0	4	0	44	93%
Zanzibar	44	42	0	4	0	46	95%
Tanzania	105	89	1	4	0	94	85%
% of outcomes		85%	1%	4%	0%	90%	

Treatment outcome of MB leprosy

Treatment outcome of MB leprosy cases notified and evaluated in 2018 shows that, of the 1,599 who were notified, 1,298 (81.0%) completed treatment while 9 (1%) patients died during treatment period. However, the data also shows that 239 (15%) patients were not evaluated due to untold reasons. For those 53 (3%) whom did not complete treatment, the reasons were: 36 (2%) lost to follow up from treatment and 17 (1%) cases were transferred out during treatment course. Most of regions attained good treatment outcomes but regions like Arusha, Singida and Njombe failed to evaluate their respective notifications. Table 8 below summarizes treatment results of MB cases notified in 2018.

Table 8: Treatment outcome of MB leprosy notified in 2018

Region	cases notified in 2018	Treatment Completed	Died	Out of Control	Transferred Out	Evaluated	% Completed treatment
Dar Ilala II	27	23	0	0	0	23	85%
Dar Ilala MC	59	55	0	3	1	59	93%
Dar Kigamboni MC	6	5	0	1	0	6	83%
Dar Kinondoni MC	54	50	0	1	0	51	93%
Dar Temeke MC	72	57	0	7	1	65	79%
Dar Ubungo MC	14	9	0	0	0	9	64%
Dar Es Salaam	**232**	**199**	**0**	**12**	**2**	**213**	86%
Arusha	1	0	0	0	0	0	0%
Dodoma	70	30	0	0	0	30	43%
Geita	118	86	1	0	0	87	73%
Iringa	8	4	0	0	0	4	50%
Kagera	16	15	0	0	0	15	94%
Katavi	72	61	2	5	2	70	85%
Kigoma	75	56	0	3	0	59	75%
Kilimanjaro	6	2	0	0	0	2	33%
Lindi	96	73	1	0	0	74	76%
Manyara	3	3	0	0	0	3	100%
Mara	7	0	0	0	0	0	0%
Mbeya	22	18	0	0	0	18	82%
Morogoro	192	198	1	0	0	199	103%
Mtwara	86	86	0	0	0	86	100%
Mwanza	75	54	0	3	1	58	72%
Njombe	8	2	0	1	0	3	25%
Pwani	49	38	1	5	0	44	78%
Rukwa	90	92	0	0	0	92	102%
Ruvuma	63	56	1	0	0	57	89%
Shinyanga	42	27	0	3	12	42	64%
Simiyu	2	2	0	0	0	2	100%
Singida	19	7	0	0	0	7	37%
Songwe	6	3	0	0	0	3	50%
Tabora	49	23	0	0	0	23	47%
Tanga	133	104	2	4	0	110	78%
Mainland	**1,540**	**1,239**	**9**	**36**	**17**	**1,301**	80%
Pemba	6	6	0	0	0	6	100%
Unguja	53	53	0	0	0	53	100%
Tanzania Zanzibar	**59**	**59**	**0**	**0**	**0**	**59**	100%
Tanzania	**1,599**	**1,298**	**9**	**36**	**17**	**1,360**	**81%**
% Of outcomes		81%	1%	2%	1%	85%	

Activities related to acceleration of leprosy elimination efforts

Tanzania continues to be one of the 22 priority countries which notify more than 1,000 cases a year and among those with higher risk of increased incidences. The country achieved WHO elimination targets in 2006 but to date remains with around 13 endemic districts.

During this reporting period, the NTLP started a process for engagement with the Global Partnership for Zero Leprosy (GPZL) and managed to be endorsed for a support to develop a country strategy model for zero leprosy and technical assistance on resources mobilization.

The Bangkok Declaration Special Funds (BDSF) project completed its third and final year of implementation while a multinational trial study project (PEP4LEP) to compare leprosy screening at health facilities and skin camps completed its first year of implementation. Similarly, BDSF project offered an additional small funds for extension and project close up. Both, BDSF and PEP4LEP projects were aiming at accelerating leprosy elimination in the country; household contact screening, provision of post exposure prophylaxis (PEP) and implementation of research activities in the selected councils. At the same time, other routine activities which included POD, Community Based Rehabilitation (CBR) and advocacy interventions were implemented countrywide.

Project to Implement Bang'kok Declaration Special Fund (BDSF)

During this reporting year, a three-year BDSF project was completed and shown that when efforts are put to search for active leprosy cases among risky families, more cases were identified and notified. The project was being implemented since the year 2017 in three endemic districts of Mkinga and Muheza in Tanga region and Chato in Geita region.

The funds to implement the Bang'kok declaration were donated by the Nippon Foundation of the Sasakawa Health Foundation (SHF) and are being managed through the WHO country office. The implementation of this project has shown good performance as shown in the table 10 below:

Table 9: The number of targeted index cases and contacts screened in the project districts during September 2017 – December 2020

Project District	*Index cases/ households*	*Contacts Screened*	*Number of contacts received PEP*	*No. of New Cases detected*
Mkinga	*91*	*329*	*43*	*9*
Muheza	*32*	*251*	*49*	*4*
Chato	*65*	*344*	*61*	*19*
Total	*188*	*924*	*153*	*32 (3.46%)*

BDSF project was mainly a community-based intervention and involved trained community volunteers moving from door to door of the affected and risky households and families. A total of 188 risk household was visited, screened its contacts and a resulting 32 (about 3.5%) new cases detected and initiated on MDT. Also, 153 family members were given a single dose rifampicin for PEP during the final year of implementation. The leprosy case detection rate was relatively high at over 3% and this shows that there might be some more hidden active leprosy cases in these communities.

PEP for Leprosy (PEP4LEP) Implementation Trial

During this reporting year, a four-year study project to "compare the effectiveness and

feasibility of a skin camp intervention to a health centre-based intervention as countries scale up chemoprophylaxis for leprosy" - An implementation trial in Mozambique, Ethiopia and Tanzania, completed its first year with a slow kick off as shown below in table 10.

Table 10: The number of targeted index cases and contacts achieved in the project districts so far during 2020

Project District	*Targets contacts be reached*	*Index cases/ households reached*	*Contacts Screened*	*People with skin diseases*	*Contacts given SDR*	*No. of New Cases detected*
Morogoro DC	*3315*	*27*	*344*	*300*	*261*	*3*
Mvomero DC	*3315*	*26*	*469*	*309*	*264*	*2*
Lindi DC	*3315*	*14*	*387*	*129*	*342*	*1*
Total	*9945 = 10,000*	*67 (45)*	*1200 (3315)*	*738*	*867*	*6 (0.5%)*

By the end of first year of implementation, a study project attained only 36.2% of its annual targets of expected contacts to be recruited. The number of index cases reached went high up to 67 compared to a target of 45 cases per year. Six (0.5%) new leprosy cases were identified and initiated treatment along with 738 (61.5%) of contacts were diagnosed and treated for different common skin diseases. The table above, show that 867 (72.2%) people at risk of acquiring leprosy disease were given a prophylactic SDR.

Activities related to prevention of disabilities (POD)

The programme continues to collaborate with key stakeholders, namely GLRA, social welfare commission, leprosy care centres, referral hospitals, MDT clinics and health management teams to strengthen efforts of preventing disabilities among people affected by leprosy (PALs). The main activities implemented during this reporting year include; regular routine assessments, management of reactions, care of wounds and ulcers, constructive septic surgeries, specialized eye care, provision of prosthesis and special boots. Other services included supporting shoe making workshops and referrals to consultant hospitals and rehabilitation institutions.

People with leprosy related disabilities

In 2020, a total of 545 people affected by leprosy (PALs) with disabilities were registered. These included 168 cases with grade 2 disability among the notified new cases during the reporting period. A total of 343 (62.9%) were reviewed to assess their physical impairments 276(80.4%) had their condition improved and only 19(5.5%) PALs had their condition deteriorated and 48 (13.9%) did not change on the course of their treatment.

Leprosy reactions

A total of 82 (23.9%) leprosy patients reacted to Leprosy medication and started on corticosteroid treatment. The availability of sufficient prednisolone drugs for PALs in need at health facilities in the country remain a big challenge.

Footwear Programme

In 2020, a total of 1,750 footwear was produced centrally and distributed to regions country wide for people affected by leprosy. In addition, 128 pairs of shoes were made locally in some regions by the local shoemakers. In the case of special boots 56 pairs were produced and ten new prostheses were fabricated in different orthopaedic workshop in the country those with five prostheses being provided with pair of elbow crutches, two with pairs of auxiliary crutches and 295 footwear repairs were also done country wide for PALs with foot

deformities. Tables 13 and 14 below shows the amount of footwear distributed to People Affected by Leprosy by regions and leprosy care homes.

Table 11: Distribution of protective footwear to regions in 2020

S/N	Regions	size 4	size 5	size 6	size 7	size 8	size 9	size 10	size 11	size 12	Total
1	Ilala I	0	0	0	0	0	0	0	0	0	35
2	Temeke	0	5	5	5	5	5	5	5	0	35
3	Kinondoni	0	5	5	5	5	5	5	5	0	35
4	Arusha	0	0	1	1	1	1	1	0	0	5
5	Dodoma	5	5	5	5	5	5	5	5	5	45
6	Iringa	0	5	5	10	5	5	5	5	0	40
7	Kigoma	5	5	10	10	10	5	5	0	0	50
8	Kilimanjaro	0	1	1	1	1	1	0	0	0	5
9	Kagera	5	5	5	10	10	5	3	2	0	50
10	Lindi	10	10	10	10	10	10	10	5	5	80
11	Mara	0	5	5	10	10	10	5	5	0	50
12	Mbeya	0	5	5	10	5	5	6	2	2	40
13	Morogoro	5	5	10	10	15	15	10	5	5	80
14	Mtwara	5	10	10	10	10	10	10	5	5	80
15	Pwani	5	5	10	10	10	10	10	5	5	60
16	Rukwa	5	10	10	15	10	10	5	5	0	70
17	Ruvuma	5	5	10	10	5	10	5	5	5	60
18	Shinyanga	5	10	10	5	10	5	5	5	5	60
19	Singida	5	15	15	15	15	15	10	5	5	100
20	Tabora	5	10	10	10	10	10	5	5	5	70
21	Tanga	0	5	5	10	5	5	5	0	0	35
22	Manyara	0	0	0	0	0	0	0	0	0	0
23	Mwanza	5	5	15	10	10	10	5	5	5	70
24	Zanzibar	5	10	15	15	10	10	5	5	5	80
	Total										1365

Table 12: Distribution of protective footwear to leprosy care homes in 2020

S/N	CAMP	size 4	size 5	size 6	size 7	size 8	size 9	size 10	size 11	size 12	Total
1	Bukumbi	0	5	5	10	10	10	10	5	5	60
2	Nazareti	5	5	15	15	10	10	10	10	0	80
3	Kindwiti	5	10	15	10	5	10	5	0	0	60
4	Litisha	0	5	5	5	10	5	5	5	0	40
6	Misufini	0	5	5	10	5	5	5	0	0	35
7	Nyabange	0	5	10	10	10	5	5	5	0	50
8	Sikonge	5	5	10	10	10	10	5	0	5	60

Table 13 below shows the shoe making materials which were distributed to the trained local show makers at the identified workshops where shoe makers are present in different regions. These materials were used by the workshops to locally produce some pairs of

shoes to targeted PALs according to their individual specific requirements. The materials were also meant to serve repair works of protective shoes and other support tools of PALs found in their respective catchment areas.

Table 13: Shoe makers materials distributed for fabrication of special and local shoes production per region in 2020

Regions/ Workshop	*Leather*	*MCR*		*Hard Rubber*	*GLUE (L)*	*Thread*	*Speed riverts*	*Thread*	*Buckles*
Morogoro Nazareth	*60*	*2*		*2*	*10*	*3*	*150*	*3*	*40*
Tanga Misufini	*50*	*2*		*2*	*5*	*3*	*100*	*3*	*25*
Shinyanga	*30*	*2*		*2*	*5*	*3*	*150*	*3*	*30*
Pwani Kindwitwi	*40*	*2*		*2*	*5*	*3*	*150*	*3*	*30*
Tabora Sikonge	*50*	*2*		*2*	*5*	*3*	*100*	*3*	*30*
Mwanza Bukumbi	*60*	*2*		*2*	*5*	*3*	*150*	*3*	*30*

TB LABORATORY DIAGNOSTIC SERVICES

The TB diagnostic network has a coverage of 1,613 diagnostic centres; Smear microscopy is available at all levels (1,613); while 220 has GeneXpert, 4 Line Probe Assay (LPA) sites, 6 centres have capacity to perform Solid Culture using Lowenstein Jensen (LJ)medium and 3 centres has capacity to undertake Liquid Culture using Mycobacteria Growth Indicator Tube (MGIT).

Out of 1,613, one laboratory serves as a National Reference Laboratory commonly known as CTRL which is a standalone for TB laboratory diagnosis. It has the ability to perform Phenotypic drug susceptibility testing (DST); LPA, MGIT and GeneXpert technique.

The laboratory also undertakes routine smear microscopy for Muhimbili National Hospital. In addition, Zonal TB Culture Laboratory (ZTCL) has the capacity to perform solid culture, LPA, and GeneXpert technique. The Xpert machines are located at zonal TB culture laboratory, regional referral hospital, District Health Centre (DHs) and some Health Centres (HCs) and some dispensaries with a heavy workload.

Laboratory workload

In 2020, a total of 8,492 specimens were received at the CTRL and ZTCL. Out of those 4,088 (48%) specimens were received at the CTRL for further diagnosis, while 4,404 (52%) specimens were received at ZTCL. Table 1 and Figure 2 below, show 48% of samples was received at CTRL from upcountry, followed by Kibong'oto and Pemba with 17% and 14% respectively. However, the lowest number of samples 2% was received at Mbeya Referral Hospital.

Table 14: Specimens received in 2020

Laboratory name	*Specimen Received*	*%*
CTRL	*4,088*	*48%*
Kibong'oto	*1,472*	*17%*
Bugando	*716*	*8%*
Dodoma	*862*	*10%*
Mbeya	*196*	*2%*
Pemba	*1,158*	*14%*
Total	*8,492*	*100%*

Figure 21: Specimen Received per Laboratory

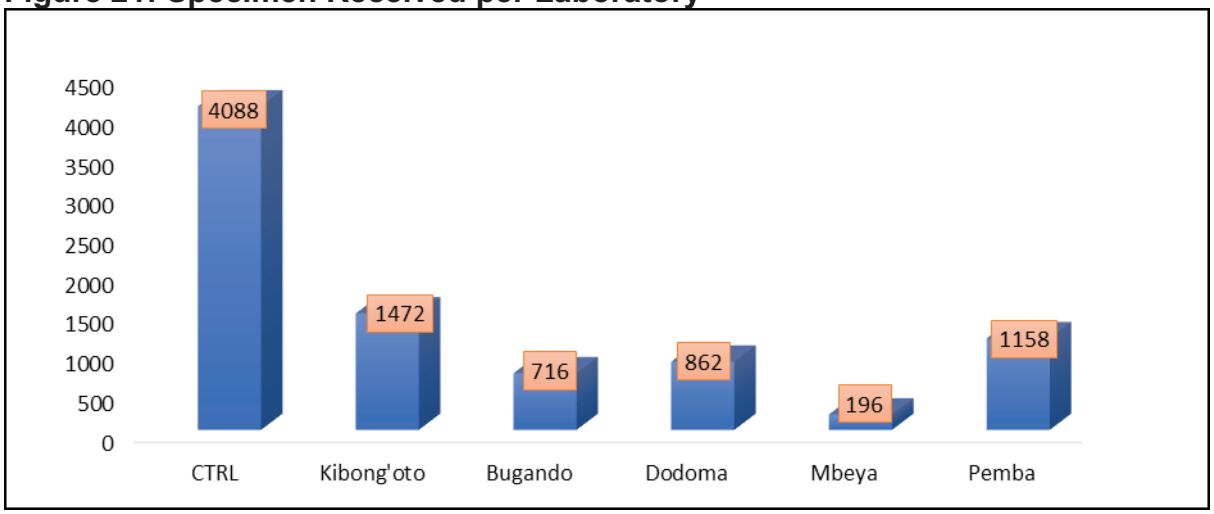
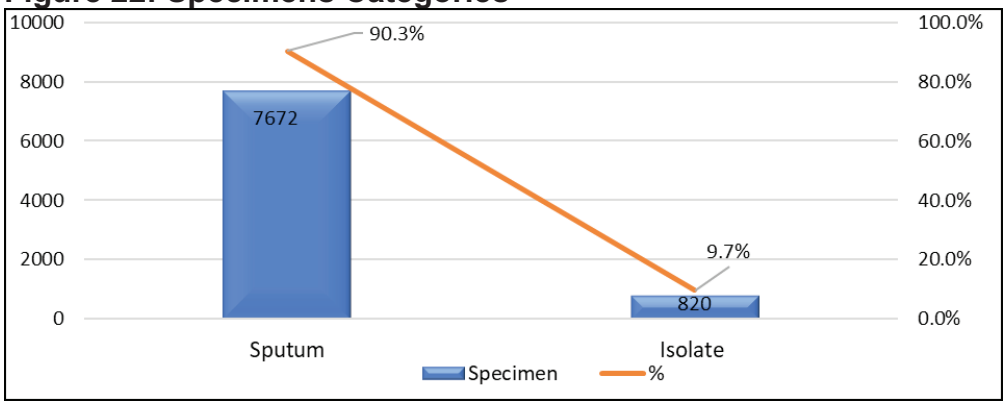


Table 14 and figure 24 above show number of specimens received and processed per reference laboratories. figure 25 below shows categories of specimens received and processed. Out of total specimen received (8,492),90.3% were sputum samples and 9.7% were Isolates from ZTCL submitted to the CTRL for further tests.

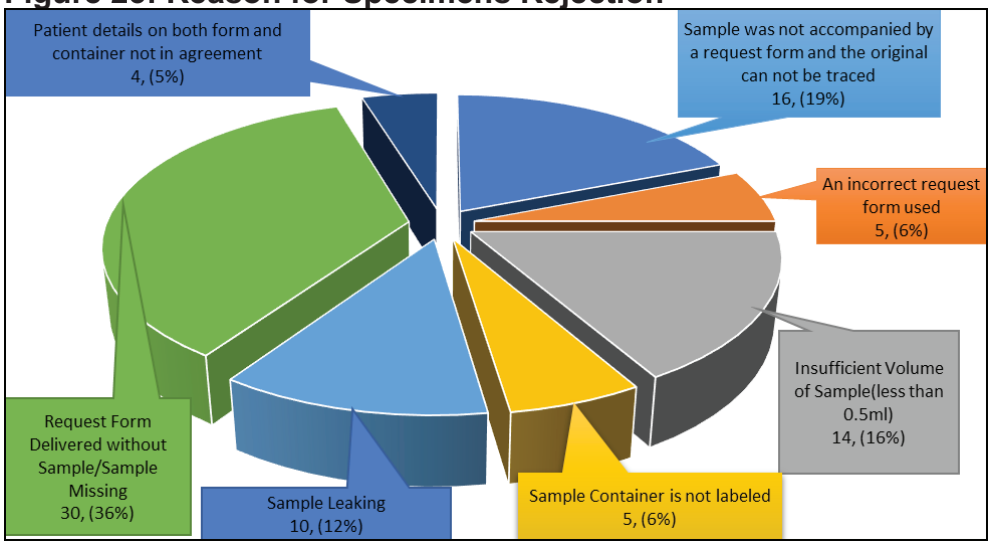
Figure 22: Specimens Categories



Sample Rejection

Figure 26 displays reason for specimen rejection this was due to: 36% of the laboratory request forms were received without specimens; and 19% of some of the samples received without a laboratory request form while 16% of the specimens received were empty container.

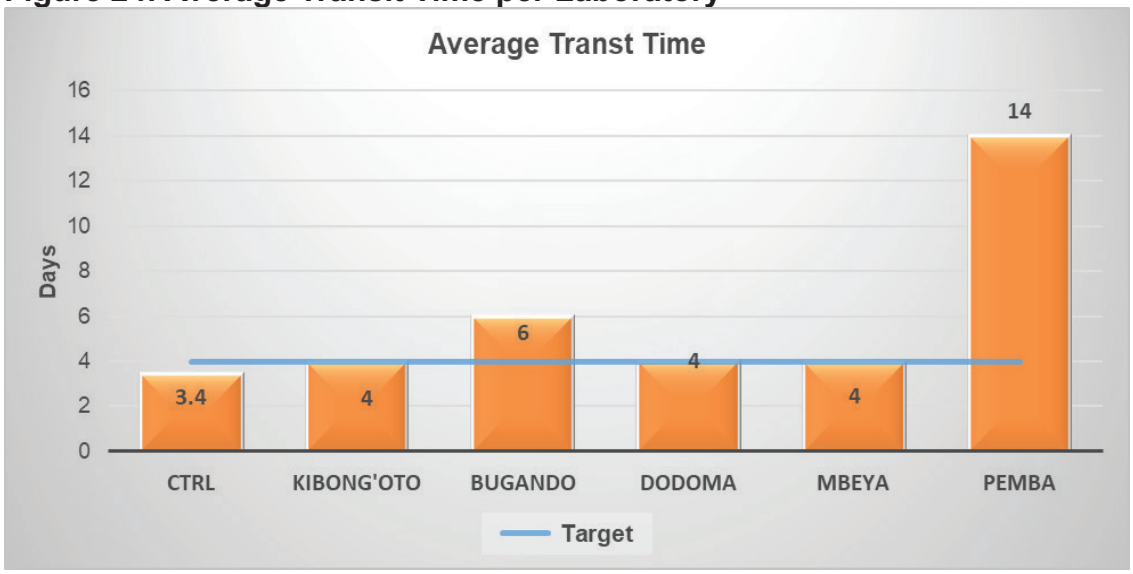
Figure 23: Reason for Specimens Rejection



Transit Time (TT): The specimen Transit time is a different between the time sample collected and the time sample received at laboratory for examination. The recommended transit time is 4 days (96 hours).

Figure 27 below shows specimen transit time for each laboratory. Four laboratories have TT within recommended TT (< or = 4 days), these are CTRL, Kibong'oto, Dodoma and Mbeya While Bugando and Pemba ZTCL have TT beyond recommended time (6 and 14 days respectively).

Figure 24: Average Transit Time per Laboratory



Routine Surveillance System (DR-TB)

Specimens received at the CTRL from the Zonal TB culture laboratories

Specimens are collected across the country and submitted to the ZTCL where culture is performed. Then isolates are sent to the CTRL for DST.

In 2020, 85,597 TB cases were notified in the country, out of which 28,760 (34%) new cases bacteriological confirmed and 2,468 (3%) previously treated TB cases. However, a few numbers of specimens were submitted to reference laboratories (CTRL and Zonal Labs) for DST. Presumptive new cases were 5,693 (22.84%) and 2,220 (70.20%) of previously treated cases were received as shown in the Table 2.

Table 15: Sample Received Among Notified Cases

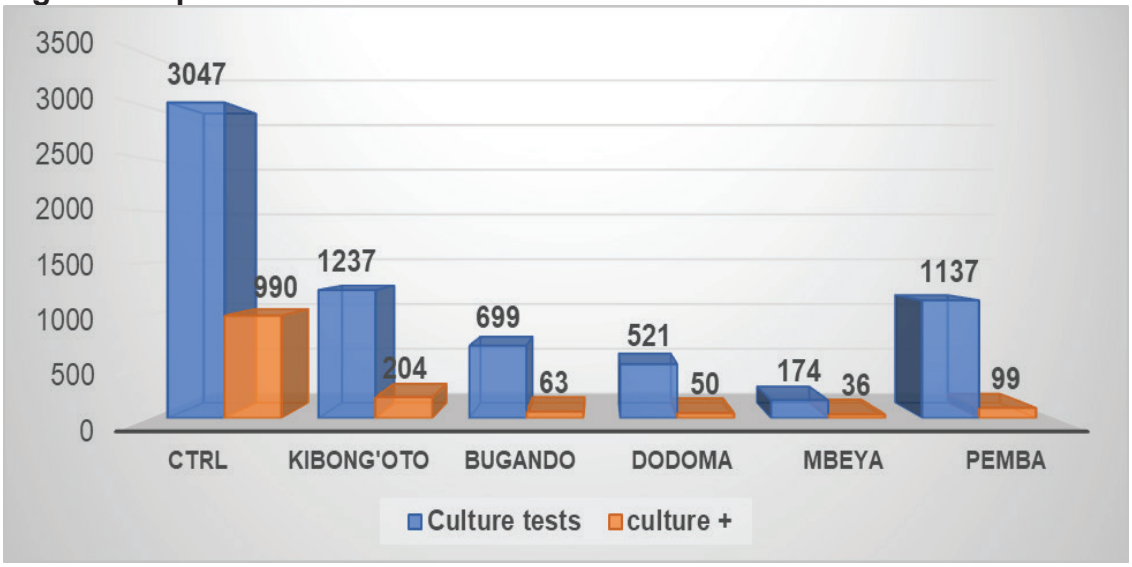
	Notified Cases	*Received*	*%*	*Target*
New-Bacteriological Confirmed Cases	*28,760*	*5,693*	*20%*	*7,190 (25%)*
Previously treated TB patients	*2,468*	*2,220*	*90%*	*2,468 (100%)*
Total	*31,228*	*7,913*	*25%*	*9,658*

CTRL Culture Indicators

Out of the 8,492 specimens received at the reference laboratories in 2020, 6,815 (80.3%) tested for culture.

Figure 28 below shows general number of culture tests with culture positive for each reference laboratory. Majorities of tested samples were performed at the CTRL 3,047 (38%) followed by Kibong'oto 1,237(16%) and Pemba 1,137(14%). Mbeya culture laboratory tested fewer numbers specimen compared to other laboratories 174 (2%).

Figure 25 Specimens with culture results in 2020



The table 16 shows the general proportions of culture results from all TB culture laboratories (CTRL and Zonal Laboratories) performed in 2020. It was noted that, 89% of specimens that were smear positive were tested for culture and 137 (2%) were contaminated.

Table 16: Categories of culture results

Proportions of culture results	Targets	N	%
Number AFB smear positive specimens' Culture Positive for MTBC / Number of Smear positive specimens processed for culture	85-90%	960 / 1073	89%
Number AFB smear negative specimens' Culture Positive for MTBC / Number of Smear negative specimens processed for culture	20-30%	470 / 1994	24%
LJ culture contamination rate	(2 - 5) %	137/6815	2%

Table 17 below shows culture positive and Isolates from Zonal Laboratories which were sent to the CTRL for further tests.

Table17: Number of Isolates sent to CTRL against number of Culture Positive per zonal laboratory in 2020

Laboratory	*Culture Positive*	*Isolate To CTRL*	*%*
Kibong'oto	*204*	*194*	*95%*
Bugando	*63*	*113*	*179%*
Dodoma	*50*	*46*	*92%*
Mbeya	*36*	*15*	*42%*
Pemba	*99*	*83*	*84%*
Total	*452*	*451*	*99.8%*

Keys: Lab- laboratory; CTRL-Central TB reference laboratory

4.0 DRUG SUSCEPTIBILITY TESTING PROFILE

In Table 5 all positive cultures 660 from the CTRL and isolates 820 from ZTCL underwent either proportion method or molecular technique – LPA for first- or second-line DST.

Table18: First line phenotypic DST profile

	Recommended	*N*	*%*
Mono or Multi drug resistance proportion		*105*	*9.2%*
Number and proportion of isolates inoculated for DST that were discarded due to contamination	*<3%*	*31*	*2.7%*
Number and proportion of isolates inoculated for DST that were uninterpretable due to lack of growth of control (drug-free) tubes/ plates	*<3%*	*15*	*1 %*
Sensitive to All		*1000*	*88.0%*
Total		*1137*	*100.0%*

Table 19 shows 1,102 (98.8%) were sensitive to all second line drugs and less than 2% were contaminated.

Table 19: Second line phenotypic DST profile

	Recommended	**N**	**%**
Mono or extremely drug resistance proportion		2	0.2%
Contaminated DST	**<3%**	10	0.9%
Number and proportion of isolates inoculated for DST that were uninterpretable due to lack of growth of control (drug-free) tubes/ plates	**<3%**	13	1%
Susceptible to all drugs		1,102	98.8%
Total		**1,115**	**100.0%**

Agar Proportion Method (LJ DST)

A Total of 1,137 specimen underwent Phenotypic DST in 2020. Out of those 88% were susceptible to first line anti TB (FLD) drugs, 9.2% were either mono or resistant to all drugs and 5% were contaminated. See Table 7 below.

Table 20: Susceptibility Testing Profile – Proportion method

Registration	*New patient*	*Retreatment*	*Total*	*%*
Total Result Reported	*733*	*404*	*1137*	*100.0%*
Susceptible to all first-line drugs	*634*	*335*	*969*	*85.2%*
MDR	*25*	*22*	*47*	*4.1%*
Resistant to Isoniazid, Rifampicin, Streptomycin and Ethambutol	*3*	*6*	*9*	*0.8%*
Resistant to Isoniazid, Rifampicin and Ethambutol	*0*	*1*	*1*	*0.1%*
Registration	*New patient*	*Retreatment*	*Total*	*%*

Resistant to Isoniazid, Rifampicin & Streptomycin	*5*	*2*	*7*	*0.6%*
Resistant to Isoniazid & Rifampicin	*14*	*13*	*27*	*2.4%*
Resistant to Rifampicin & Streptomycin	*3*	*0*	*3*	*0.3%*
Mono resistant drug	*25*	*13*	*38*	*3.3%*
Resistant to Isoniazid	*12*	*6*	*18*	*1.6%*
Resistant to Rifampicin	*8*	*4*	*12*	*1.1%*
Resistant to Ethambutol	*0*	*0*	*0*	*0.0%*
Resistant to Streptomycin	*3*	*1*	*4*	*0.4%*
Resistant to Isoniazid & Streptomycin	*1*	*1*	*2*	*0.2%*

4.2 Line Probe Assay

A total of 221 specimens were examined using the LPA of which 193 tested for FLD and 28 tested for Second Line Drugs (SLD). Table 8 below shows DST profile 15 (7.8%) were MDR TB and 40 (20.7%) were MTB not detected.

Table 21: Line Probe Assay Test Results in 2020

Measures	New patient	Retreatment	Total	%
First Line Probe Assay				
Resistant to Isoniazid	1	2	3	2%
Resistant to Rifampicin	6	5	11	6%
Resistant to Isoniazid and Rifampicin	8	7	15	8%
Sensitive to Isoniazid and Rifampicin	31	93	124	64%
MTB not Detected	4	36	40	21%
Total	**50**	**143**	**193**	**100%**
Second Line Probe Assay				
Sensitive to all	16	10	**26**	**93%**
MTB not Detected	1	1	**2**	**7%**
Total	**17**	**11**	**28**	**100%**

4.3 GeneXpert MTB/RIF

4.3.1 National GeneXpert tests summary

The CTRL continue to monitor all Xpert important indicators such as (resistant, invalid, errors rate and sensitive samples): Errors rate was 5.9%, invalids test was 1.18% and No result 3.27% (see Table 9). The Error and No result were beyond recommended rate of 5% and 2% respectively. This was due to frequent fluctuations. A total of 22,7807 tests performed, Rifampicin Resistance (RR) were 437 (0.19%) (See Table 9).

Table 22: National GeneXpert test results summary in 2020

Measures	*Total*
Total number of Xpert tests	*227,807*
Total number of Xpert MTB-	*186,236*
Total number of MTB+ RIF sensitive	*16,628*
Total number of MTB+ RIF resistance	*437*
Total number of MTB+ RIF indeterminate	*746*
Total number of MTB Trace	*29*
Total number of error results	*13,596*
Total number of Invalids	*2,679*
Total number of No results	*7,456*
*Average Rate of Xpert MTB positivity **	*8%*
Average Rate of error results	*3%*
*Average Rate of Rif resistance ***	*0.2%*

Figure 26 Comparison of GeneXpert Results summary for 2019 and 2020

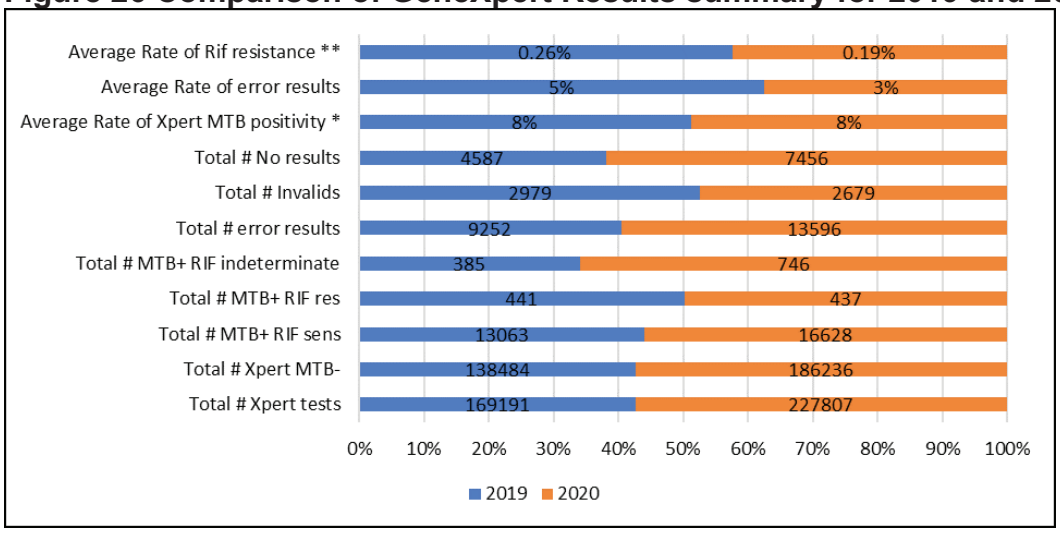


Figure 7 above demonstrates summary comparison of Xpert results between 2019 and 2020. In 2020 rifampicin resistance (0.19%) was lower than in 2019 (0.26%), Error results in 2020 was lower (3%) than in 2019 (5%). There was an increase of number of samples tested (22, 7807) in 2020 compared to 2019 (16, 9191).

4.3.2 Strengthening of Molecular Tb Diagnostic Services in the Country

The CTRL continue to oversee GeneXpert implementation activities countrywide through training of users and pool of superusers, development and review of training materials, SOPs, supervision tools, monitoring of data through web-based by the GxAlert system and manual compilation to non GxAlert connected machines, conducting remotely and targeted supportive supervisions and mentorships, troubleshooting, maintenance of machines, GxAlert software, calibrations and scale up of WHO recommended technologies.

In 2020, there were 259 GeneXpert installed in 224 sites countrywide as compared to 239 in 2019 increase of 20 (8%) machines. Out of the 259; 245 (95%) machines are used for testing TB and 14 machines are not testing TB they are used for research; communication is underway to ensure all machines are used to diagnose TB.

To ensure electronic data capture, CTRL continue to scale up machines connected to GxAlert, in 2020; 219 out of 259 (85%) machines used to diagnose TB were installed with GxAlert software and uploading data to server. Increased GxAlert connected machines from 106 in 2019 to 201 (90% increase) by December 2020 (see figure 7).

Figure 27: Scale up of GeneXpert and GxAlert from 2015 to 2020

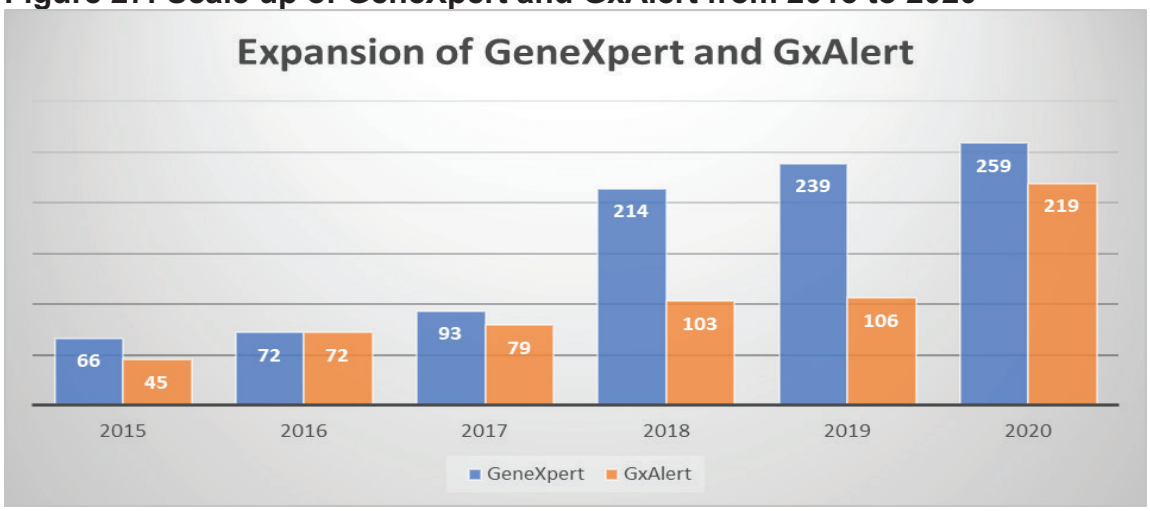
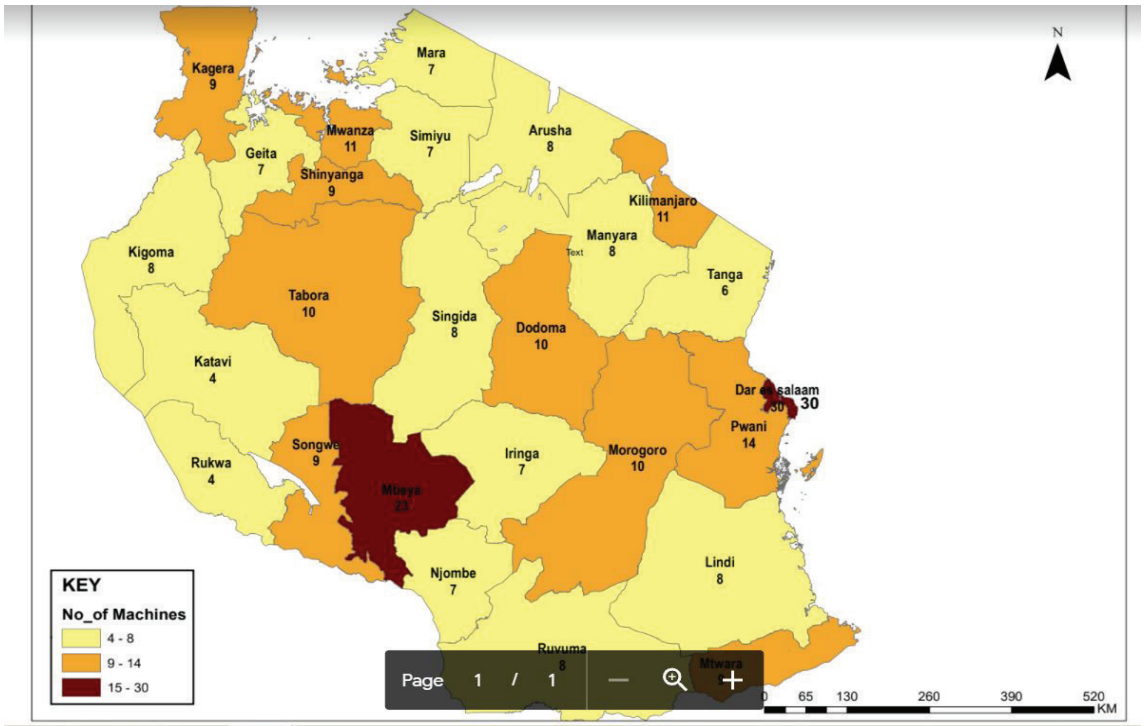


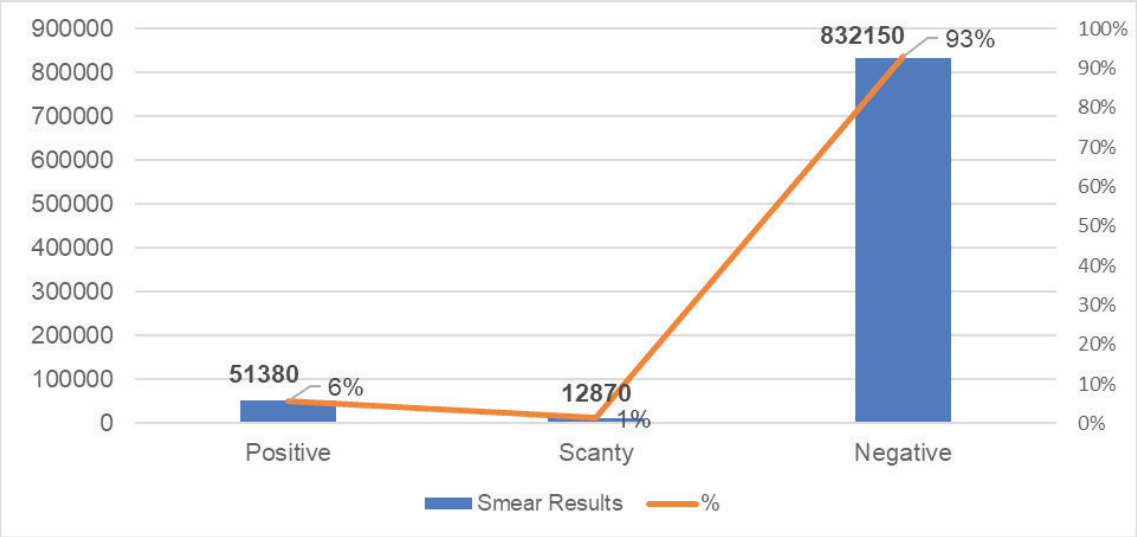
Figure 31: Map showing GeneXpert Mapping in Tanzania in 2020



Smear Microscopy Indicators

In 2020 total of 896,400 smear microscopy tests performed in the county. 93% of tested specimens were negative and the positivity rate of smear microscopy tests was 7%.(see figure 10 below)

Figure 28: Smear Microscopy Test results in 2020



National AFB Smear Microscopy External Quality Assessment Laboratories Summary

The CTRL coordinates EQA (blind rechecking) implementations for AFB smear microscopy country wide. Table 10 illustrate participation of TB laboratories.

Table 23: AFB smear microscopy summary results of rechecking

Summary results of rechecking

COUNTRY	Tanzania	Year	2020
Number of operational laboratories	*1,613*		*%*
Number of those rechecked (%)	*927*		*57%*
Number of positive slides rechecked	*2,087*		*12%*
Number of negative slides rechecked	16,020		88%
Overall percentage positives in the laboratories' routine	7%		100

From Table 10 above, out of all 1, 613 TB Operational Laboratories in the country, rechecked laboratories were 927 (57%) and total number of slides rechecked were 18,107 where 2,087 (12%) were positive slides.

Strengthening Quality Management System in TB Diagnostic Network

Implementation of established Quality Management System (QMS) at TB diagnostic laboratories in TB diagnostic network ensure the provision of quality assured laboratory test results that satisfy and meet the requirement of laboratory users including patients, CTRL play an important role to oversee the TB laboratories practice on QMS under ISO 15189:2012 International Standard (Medical laboratories Requirement for quality and competence).

In 2020, CTRL provides technical assistance (TA) and other support on accreditation of TB laboratories seeking international accreditation. The TA provided include: preparation and

distribution of Inter-Laboratory Comparison (ILC) to Xpert sites as an alternative approach following intermittent supply of Proficiency Testing (PT) from Centre for Disease Control (CDC); Ensure constant supply of reagents to all laboratories. In that view, 16 laboratories were accredited on Xpert and smear microscopy tests by either SADCAS or KENAS.

External Quality Assessment

The EQA performance on Blinded recheck system for AFB smear microscopy for 2020 was 82% where 927 laboratories were rechecked out of 1,129 laboratories. 134 out of 239 Xpert laboratories participates in CDC PT scheme and 100 laboratories scores with satisfactory performance while 19 laboratories score unsatisfactory (below 80%) and 15 laboratories fail to respond.

In addition, 185 out of 239 Xpert laboratories participated in ILC Program coordinated by CTRL whereby 169 labs score satisfactory results and 16 laboratories score below 80%.

Quality Management System at CTRL

The QMS was initially introduced at CTRL since 2014 through stepwise Laboratory Quality Improvement Process towards Accreditation (SLIPTA), the effectiveness of the implementation of established QMS was steadily improved from the first baseline assessment conducted by ASLM in 2014 whereby the laboratory scored zero star. Under the effort of committed management and laboratory staff with good IPs support the laboratory manage to attain five star in the ASLM assessment done in April 2018 and CTRL recommended for accreditation.

The laboratory is accredited by SADCAS since October 2018 in AFB smear microscopy and Xpert test scopes. The CTRL manage to maintain accreditation following periodic assessment conducted on yearly basis. The laboratory was re-assessed by SADCAS on September 2020 and manage to maintain the accreditation status. The next periodic assessment will be conducted in October 2021.

Media Preparation

In the same year 2020, the CTRL managed to prepare a total of 23,993 solid LJ Media for routine cultures for both FLD and SLD DST whereby 8,291 was used for culture, 10,266 for FLD, 3,433 for SLD and 2,003 for Bacterial identification procedure.

Media contamination rate was monitored in every prepared batch that varies from 0.5 to 1.9% (within acceptable ranges).

The CTRL plans to strengthen the Media preparation section to prepare and distributes quality Media to all ZTCL. This will allow to monitor the quality of used media within the networks by 2021.

Proficiency Tests Performance

In 2020, the CTRL participated in PT scheme from CDC Atlanta and SRL Uganda. The score performance varies in different test however Xpert and smear test show wonderful acceptable results on both rounds one and two. The LPA the labs scored acceptable value for SLD but the score for FLD was not acceptable for both DST and LPA. (See Table 11 below). The laboratory conducts corrective actions for un acceptable results.

Table 24: Proficiency Testing Results

PT Provider	Proficiency Panel	Survey	Date received	Date results submitted	Results /Score	Acceptable / Unacceptable
GeneXpert MTB/RIF						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	GeneXpert MTB/RIF	Round 01	09/03/2020	12/03/2020	100%	Acceptable
	GeneXpert MTB/RIF	Round 02	04/09/2020	06/09/2020	100%	Acceptable
CDC Atlanta	GeneXpert MTB/RIF	Round 01	27/02/2020	10/03/2020	100%	Acceptable
SMEAR MICROSCOPY						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	Microscopy	Round 01	09/03/2020	13/03/2020	100%	Acceptable
	Microscopy	Round 02	04/09/2020	09/09/2020	100%	Acceptable
LINE PROBE ASSAY						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	First Line LPA	Round 01	21/08/2020	23/09/2020	78%	Not Acceptable
	Second Line LPA	Round 01	21/08/2020	23/09/2020	100%	Acceptable
DRUG SUSCEPTIBILITY TEST						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	LJ DST First Line	Round 01	21/08/2020	23/09/2020	60%	Not Acceptable

PROGRAMME SUPPORT ACTIVITIES

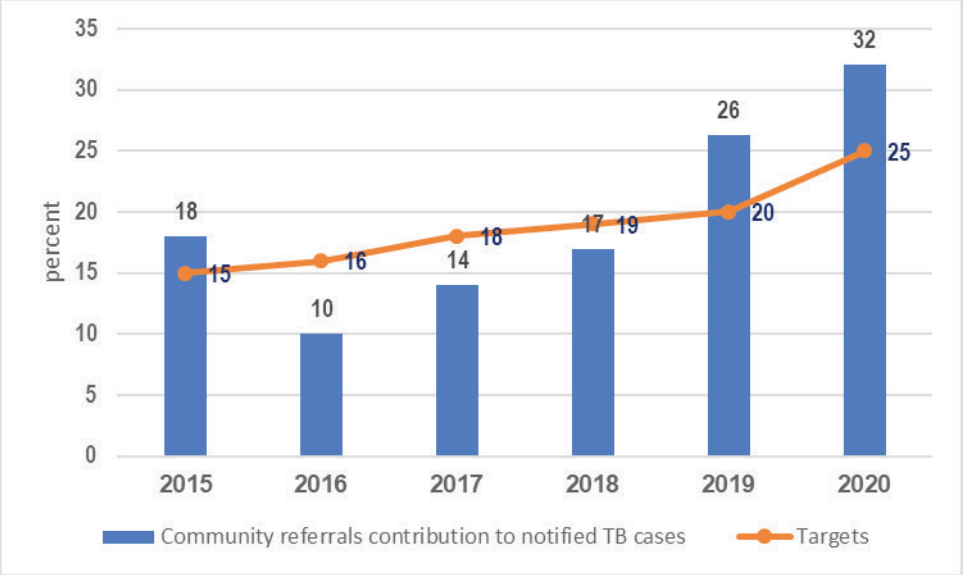
Community empowerment activities

The implementation of the community-based activities has been implemented by the Program in collaboration with LGA's, implementing partners, and community networks. The main focus, was active case finding in the community, joint supervision and coordination meetings with stakeholders and implementing partners was conducted. Training of Community Health Workers (CHWs') and Sputum fixers were conducted in some of the councils to capacitate the CHWs (including sputum fixers) with the skills of conducting contact tracing, active case finding and sputum collection and fixation.

The national average community contribution to TB notification was 32% a increased from 26% in 2019.

Home Based DOT still continued to be the most preferred mode of treatment as 95% of TB patients in 2020 chose to take their TB medicines under home based modality. The treatment outcome of the TB cases notified in 2019 shows no significant difference between patients treated under home based DOT and Facility Based DOT, all at 93%.

Figure 29: TB notification as percentage of community referral for years 2015 to 2020



Advocacy, Communication and Social Mobilization (ACSM) activities

Advocacy, Communication and Social Mobilization activities are the backbone of the Programme. During the year under review World Leprosy and TB Days were World Leprosy and TB Days were commemorated on 26th January and 24th March 2020 respectively.

Official statements were given by the Minister of Health, Community Development, Gender, Elderly and Children. Sensitization though radios and television were emphasized and screening through the online TAMBUA TB App were encouraged due to COVID 19 pandemic emphases on social distancing. A total of 1,420 radio spots were broadcasted and 470 TV spots were broadcasted through national and local radio and television stations.

Supportive Supervision

Supportive supervision of Tuberculosis and leprosy services were conducted or coordinated in all regions, these includes the general supportive supervision targeting all area of provision

of services and also the specific supervision targeting specific area such as laboratory services.

Main strengths

- All regions and councils have a dedicated or focal person appointed to oversee and coordinate Tuberculosis and Leprosy activities at regional or council levels.
- Most of the visited facilities providing TB diagnostic services and have adequate supply of reagents and commodities, electrical and water supplies.

Main Identified gaps

- Un availability of SOPs for Smear microscopy, inadequate documentation on internal quality control,
- Delay in updating of TB treatment cards, TB Laboratory register for key elements such as TB district number, follow up laboratory sputum smear results, treatment outcomes etc.

Recommendations

- Scale up Diagnostic facilities, strengthen the existing facilities by distribution of SOPs and improve documentation internal quality control
- Build capacity of council and facilities to direct enter data into the DHIS2-ETL system and improve data analysis and use skills
- PO RALG in collaboration with MOHCDGEC should conduct joint supportive supervision for effective implementation and follow up of the program
- MOHCDGEC distribute, orient, updated recording and reporting tools to all facilities
- There should be fully involvement of RTLC and DTLCs during CCHP planning and feedback

Operational Research

The programme continued to conduct or participates in number of operations researches which includes:

- Reducing delays to multidrug-resistant tuberculosis case detection through a revised routine surveillance system. BMC Infect Dis 20,594 (2020). https://doi.org/10.1186/s12879-020-05298-8, 26 July 2020
- RISE

5.0 ANNEXES

Annex 1: list of TLCU staff in 2020 was as follows

1. Dr Zuweina Kondo-Sushy – Ag. Programme Manager
2. Dr Liberatus Mleoh – Deputy Programme Manager
3. Mr. Didas Kayumba – Programme Administrator
4. Ms. Aneth Mbunga – Health Secretary
5. Dr Deus Kamara – Leprosy and TB care and Prevention Coordinator
6. Ms. Diana Kasembe – Training Coordinator
7. Dr Allan Tarimo – Public Private Partnership Coordinator
8. Mr. Patrick Mchami - Health Secretary
9. Dr Webhale Ntagazwa – Research Coordinators
10. Mr. Emmanuel Nkiligi – Data Manager
11. Mr Jumanne Mkumbo – Programme Pharmacist
12. Mr. Crispin Mamkinga – Pharmacist
13. Dr Hassan Mattaka – Paediatric Coordinator
14. Ms. Lilian Ishengoma – Community TB care Coordinator
15. Mr. Paul Shunda – Orthopaedic Technologist
16. Mrs. Florentina Mallya – Procurement and Supplies Coordinator
17. Ms. Basra Doulla – Head, National TB Reference Laboratory
18. Mr. Salim Bossy – Senior Laboratory Technician
19. Ms. Daphne Mtunga – Laboratory Technician
20. Mr. Amri Kingalu – National TB Reference Laboratory Manager
21. Ms. Christine Chipaga - Data entry clerk
22. Ms. Grace Tairo - Data entry clerk
23. Ms. Khadija Kassim - Data entry clerk
24. Mr. Mashaka Penza - Data entry clerk
25. Mr. Lugano Ross – Accounts Assistant
26. Ms. Sophia Temba - Accountant
27. Mr. Joachim Kizzuri - Accountant
28. Mr. Augustus Machumi – Accountant
29. Dr Isack Lekule – MDR-TB Advisor
30. Dr Emmanuel Matechi – TB Programme Advisor
31. Dr Peter Neema – TB/HIV Coordinator
32. Mr. Elieza Paul – Data Quality Officer
33. Mr. Hassan Mwinyikae – Assistant Data Manager
34. Mr. Nicodemus Mgina – Laboratory Technician
35. Mr. Emmanuel Massawe – ICT Manager
36. Mr. Raymond Shirima – Data Analyst
37. Ms. Agness Wandwalo – Data Clerk
38. Ms. Eugenia Michael – Secretary
39. Mr. Aggrey Mwihava - Procurement and Supplies Officer
40. Mr. Jacobo Girista - Supplies Officer
41. Mr. Rashid Suleiman - Driver
42. Mr. Hones Mmbando - Driver
43. Mr. Mdachi Njama – Driver
44. Mr. Edward Shija - Driver

Annex 2: list of Regional Tuberculosis and Leprosy Coordinators (RTLCs) in 2020

1. Dr Edna Ntulwe – Arusha
2. Dr Mrisho Lupinda - Kinondoni
3. Dr Mary Kennedy Chiryamkubi – Temeke
4. Dr Seif Mbarouk – Ilala I
5. Dr Catherine Saguti - Ubungo
6. Dr Salumu Abdalah – Ilala II (Muhimbili & Private Hospitals, Dar es Salaam)
7. Dr Martin Massimba/ Dr Peres Lukango – Dodoma
8. Dr Tecla Orio – Iringa
9. Dr Pascal Pagali - Kagera
10. Dr Benedict Komba - Tabora
11. Dr George Mrema – Kigoma
12. Dr Geoffrey Chelangwa – Kilimanjaro
13. Dr Abasi Pegwa – Lindi
14. Dr Neema Chillo/ Dr Fabian Byesigwa – Mara
15. Dr Mandala Adam – Manyara
16. Dr Osmunda Mwanyika – Mbeya
17. Dr Mwanakufya Simfuke/Marko Shigella – Morogoro
18. Dr Nangi Nangi– Mwanza
19. Dr Mohamed Kodi - Mtwara
20. Dr Aden Mpangile – Pwani
21. Dr Dismas Buhili - Rukwa
22. Dr Xavier Mbawala – Ruvuma
23. Dr Laurent Mhembe – Shinyanga
24. Dr Evancy Mlay – Singida
25. Dr Benedict Komba- Tabora
26. Dr Raphael Mumba – Tanga
27. Dr Emmanuel John - Simiyu
28. Dr Lugano Mwakipesile – Songwe
29. Dr Manyanza Mponeja - Njombe
30. Dr Agael Mollel - Katavi
31. Dr Michael Mashalla - Geita
32. Dr Obed Mshana - Unguja
33. Dr Hamad Omar - Pemba

Annex 3: list of District Tuberculosis and Leprosy Coordinators (DTTLCs) in 2020

S/N	REGION	DISTRICT	NAME	PHONE NUMBER	EMAIL
1	NJOMBE	WANGINGÓMBE DC	ATTU FUTE	755302712	attufute@gmail.com
		MAKAMBAKO TC	CHARLES MBOTA	766332159	chahill59@gmail.com
		NJOMBE TC	KISULILA MASHAKA	765667912	ikisulila@gmail.com
		LUDEWA DC	AMAN HAULE	752993734	amanhaule@yahoo.com
		NJOMBE DC	JONATHAN SIHA	756869553	jonathansiha@gmail.com
		MAKETE DC	JONATHAN KITUNDU	754570189	kitunduj@gmail.com
2	MANYARA	BABATI DC	DR JACOB MWANAMTWA	755082287	jacobmtwa@gmail.com
		BABATI TC	DR CATHERINE PALLANGYO	784606331	pallangyocatherine@gmail.com
		KITETO	DR XAVELINA RWAMTOGA	753243247	rxavelina@yahoo.com
		MBULU TC	DR ANDREW MAO	787505312	maoandrew2016@gmail.com
		HANANG	DR ERASTO MUSHI	788614859	emushi30@yahoo.com
		SIMANJIRO	DR CELESTINA LOSARU	785285235	losarucelestina@yahoo.com
		MBULU DC	ALLY FUPI	784829903	allyfupi@gmail.com
3	ILALA 2	MUHIMBILI	AUGUSTA MABADA	653157666	augustamabada@gmail.com
		ILALA DC	SIKUJUA ALLY	717636583	allysikujua@gmail.com
		PRIVATE HOSPITAL	TUKAE LUCAS	784620958	tukayelucas2018@gmail.com
4	KAGERA	NGARA DC	SIMON L. MUGERA	767038636	mugerasimon84@gmail.com
		BUKOBA MC	DR.ANOLD RWENYAGIRA	755949343	arwenyagira@yahoo.com
		MULEBA DC	DR.ABDILLIAN FRANCIS	755568818	abdillian@gmail.com
		KYERWA DC	SARAPION TIBYEMPASHE	765165089	sarapionrwekaza@gmail.com
		MISENYI DC	MAKOYE FRED LWANGO	769667933	makoyelwango85@gmail.com
		BIHARAMULO DC	PIUS MISUNGWI	754086241	piusmisungwi@gmail.com
		KARAGWE DC	MISANGO M MAXIMILLIAN	757271251	maxmisango@gmail.com
		BUKOBA DC	RIZIKI KIKOMELO	755676895	rizikikikomelo@gmail.com

S/N	REGION	DISTRICT	NAME	PHONE NUMBER	EMAIL
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		MOROGORO DC	AYUBU NAFUTARI	765666560	mpandeayubu@gmail.com
		GAIRO DC	MWAJUMA ABDALA	782117989	Abdalamwajuma120@gmail.com
		MALINYI DC	IVAN KATO	712493939	ckatojr@gmail.com
		KILOSA DC	JUSTIN SENYANGWA SAILEN	652035864	jsaileni@yahoo.com
		MLIMBA DC	AMANI E. NKILINGI	782144439	vumiliaamani@yahoo.com
		IFAKARA TC	MUSSA JABBA	684701590	jabbamussa@gmail.com
		ULANGA DC	THABIT KIBIKA	655070371	tkibika14@gmail.com
6	KIGOMA	BUHIGWE DC	BENEVITO TITO MNEMELE	769615403	benivitonm@gmail.com
		KAKONKO DC	DR. FREDRICK MSHANA	782133927	f.mshana@yahoo.com
		KASULU DC	KAWAMBWA KAWAMBWA	767135822	Kawambwa1@yahoo.com
		KASULU TC	MAHUYA SHIBINA	756584075	mahuyamussa@gmail.com
		KIBONDO DC	DR. LAUREAN KANAGANWA	766256161	lkanaganwa@gmail.com
		KIGOMA DC	DR. JAMES JUMMANNE	769913871	mkeyajames@gmail.com
		KIGOMA MC	PRAYGOD SWAI	763763576	praygodwlaban@gmail.com
		UVINZA DC	RAMADHANI KAPIGAWASI	764210817	ramadhanikapigawasi@gmail.com
7	KILIMANJARO	SIHA DC	JACKSON KILEO	765516606	kileojaxy@gmail.com
		HAI DC	ALPHONCE SHIRIMA	767015858	shirimaalphonce@yahoo.com
		MOSHI MC	DR MARY MWASHA	762162087	marymwasha@gmail.com
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		ROMBO DC	CORNELIO MMANGA	769147494	corneliommanga@yahoo.com
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		NYANG'HWALE DC	ERICK KAMOGA	763976770	kamoga.erick@yahoo.com
		BUKOMBE DC	JOSHUA MAZINGO	742975000	mazingojm@gmail.com
		CHATO DC	DEOGRATIUS JOHN	757728658	
9	IRINGA	IMC	SIMON KESSY	752362226	Simonkessy20@yahoo.com
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10	TANGA	BUMBULI	CHARLES ZAWAGHOLI	768640568	charleszawagholi@gmail.com
		HANDENI DC	DR RASHIDI MHINA	653415447	rashidimhina10@gmail.com
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		KOROGWE DC	BARAKA ELISANTE	658870245	esantebaraka@gmail.com
		KOROGWE TC	HERIEL ELISA	717391153	gadnaelisa@gmail.com
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		BARIADI DC	BARAKA STEVEN	759141921	stevmyn001@gmail.com
		ITILIMA	JULIAS LUGATAMITI	784641879	jlugatamiti@yahoo.com

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		SONGWE	FIDELIA KATUMBI	764045229	katumbifidelia@gmail.com
		MOMBA	CHRISTIAN SHEKIANGIO	754247176	shekiangiochristian@gmail.com
		TUNDUMA	GODFREY NGALUNGA	758767781	ngalungag@gmail.com
13	TABORA	NZEGA DC	DR SALIM SOBBO	675336452	ngunduly1@yahoo.com
		NZEGA TC	ATINO KABOGO	755771351	kabogoatino20@gmail.com
		URAMBO DC	DR MIZAIKE DWESE	754916232	dwesemizaikesk@yahoo.com
		KALIUA DC	DR BARNABAS MAYUNGA	758392661	barnabasmayunga@yahoo.com
		UYUI DC	DR SEREJIO SINDABAKIRA	756360338	serejiosindabakira@yahoo.com
		IGUNGA DC	DR JOACHIM KABEYA	784455060	stevejoachim14@gmail.com
		TABORA MC	DR THOBIAS BOLLEN	754913182	thobiasbolen@ymail.com
		SIKONGE DC	DR JOHN BUSWELU	787187833	johnbuswelu33@gmail.com
14	SHINYANGA	SHINYANGA MC	DR. LAMECK MIHAYO	759547293	meckymihayo…yahoo.com
		KISHAPU DC	DR. PHILBERT NG'WENDA	767859577	Philbertgambago@gmail.com
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		KAHAMA TC	MIRIAMU MABANGA	759199644	mabangamiriam@gmail.com
		SHINYANGA DC	DAMAS NYANSIRA	758019891	nyansorogo@gmail.com
		USHETU DC	BAKARI NYAMBEA	758006291	bnyambea@gmail.com
15	ARUSHA	ARUSHA DC	ZAKARIA NYANGAGWA	758434282	nyangazac@gmail.com
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		NGORONGORO	DR AZIZ ALLY	756052228	azizixally@gmail.com

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		VINGUNGUTI	SALAPION MUTAGWABA	755310039	msalapion@yahoo.com
		UKONGA	DR.MOSSES K. MDEMWA	658796718	moseskenedy94@gmail.com
		TABATA A	DR.ARAFA MADAI	755699777	arafamadai@yahoo.com
		CHANIKA	CHRISTOPHER MAPUNDA	754280405	cmapunda66@yahoo.com
		AMANA	HOLLO KIPOLE	716557420	kipoleh@gmail.com
17	MTWARA	MTWARA MC	RASHIDI KIGALU	713774962	rashidkigalu@yahoo.co.uk
		MTWARA DC	DR BONUS JENGELA	689234313	bonusjengela@yahoo.com
		MASASI DC	HAMISI BAKARI	784708200	hamisibakari84@yahoo.com
		TANDAHIMBA DC	AHAMAD A. MASOUD	714900636	masouda829@gmail.com
		NEWALA TC	JOHN NACHIPYANGU	719343924	nachipyanguj@yahoo.com
		NEWALA DC	EVARIST MTETEREKA	672717778	mteteleka65@gmail.com
		MASASI TC	GIDION SAUL	688377524	adamkayuchi@gmail.com
		NANYUMBU DC	JUMA MTIPA	784079357	Jumamtipa74@gmail.com
		NANYAMBA TC	GISSELA PETER	755939708	giselapeter107@gmail.com
18	DODOMA	DODOMA JIJI	ARIS PANCRAS	624029641	Sasokitz12@gmail.com
		MPWAPWA	BARAKA THADEI	625058301	barakathadei@gmail.com
		KONGWA	JULIUS KALAMBA	752065777	Karamba1julius@gmail.com
		CHAMWINO	JOYCE SWAI	785551555	Swai.joyce@yahoo.com
		CHEMBA	RAMADHANI MSIGALA	714457138	ramadhanimsigala@gmail.com
		BAHI	JAMES MIGUNGA	784115554	shemigunga@gmail.com
		KONDOA DC	JOHN SUNGI	784768689	sungijohn@yahoo.com
		KONDOA TC	ANTHONY MNUBI	753363736	mnubianthony@gmail.com
19	TEMEKE	MBAGALA	SULTANI LUSAMBI	755863038	slusambi@yahoo.co.uk
		WAILES 1	TULIKIFRI MBAGA	715667723	tmbagga@gmail.com
		RANGITATU	JOYCE MGOHAMWENDE	755943151	Jmgoha37@yahoo.com
		WAILES 2	SILVERSTAR NGOWI	713796911	ngowisilver@gmail.com
		TAMBUKARELI	AMINA NGAYAHIKA	715948024	sarahngayahika@gmail.com
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		YOMBO VITUKA	NAGHENJWA MRUTU	714498477	nagmrutu@gmail.com

S/N	REGION	DISTRICT	NAME	PHONE NUMBER	EMAIL
20	KINONDONI	MAGOMENI	SUSAN MABEBA	654853000	prosuzy37@gmail.com
		LUGALO	GEOFREY SHANI	753106162	gshanobby@gmail.com
		BUNJU	BEATRICE TEMBA	716582308	beatricetemba199@gmail.com
		TANDALE I	SWITBERT SELESTINE	758190320	switbeart@gmail.com
		TANDALE II	MWANAMVUA HAMIS	762683142	mwanamvuahmisi67@gmail.com
		MWANANYAMALA I	MALIWAZA MGANGA	768368548	mgangamaliwaza@yahoo.com
		MWANANYAMALA II	SAUDANI MASSAWE	752088887	saudathassam44@gmail.com
21	UNGUJA	MJINI NA MAGHARIB	SULEIMAN ABDULKARIM	777145564	suleimansuleiman121@yahoo.com
		KUSINI UNGUJA	MOHD ABDULKARIM CHWAYA	772808947	chwayakm@gmail.com
		KASKAZINI UNGUJA	SAIDI KHAMIS AHMADA	777932254	saeedykhamis@gmail.com
22	RUVUMA	TUNDURU DC	MKASANGE KIHONGOLE	754564532	jmaweso@gmail.com
		NAMTUMBO DC	DR JOSEPH HUBA	766253581	hubalove22@gmail.com
		SONGEA MC	EMMANUEL KIWALE	755687472	emmanuelkiwale72@gmail.com
		SONGEA DC	ADAM NGUNGA	787893352	ngunga adam1@gmail.com
		MBINGA DC	BRYSON MAPUNDA	764417226	mapunda bryson@gmail.com
		MBINGA TC	WENCESKAUS SOCKY	753305285	wenceslaussocky@gmail.com
		NYASA DC	EMMANUEL SESA	768671244	sesahemmanuel@gmail.com
		MADABA DC	MATHEW MIHANGWA	764948601	mmihangwa@gmail.com
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S/N	REGION	DISTRICT	NAME	PHONE NUMBER	EMAIL
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		KIBAHA DC	HEZRON MWAKIBUGHI	752915843	hezronmwakibughi@yahoo.com
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		RUFIJI	ROGERS. PETER. NNALLY	688874522	rnnally@gmail.com
		BAGAMOYO	JARALYA PAUL MAGESA	714222454	magesa93@yahoo.com
		MAFIA	ABDALLAH MOHAMEDI	715827061	bhaimo01@gmail.com
		KIBITI	STANLEY ALFREDY	652858751	Stanleyal226@gmaio.com
25	RUKWA	SUMBAWANGA MC	DR JOHN WAMPEMBE	766336360	wampembejohn68@gmail.com
		NKASI UPLAND	EPIMACK KALUNGWIZI	767843634	kalungwizie88@gmail.com
		NKASI KIRANDO	JOSEPH MABUSHI	756084896	mabushijoseph@gmail.com
		SUMBAWANGA DC	FRANCIS MWASYEBULE	755940838	francismwasyebule@gmail.com
		KALAMBO DC	BONIFACE CHAPANGA	756470527	chapangaboniphsce@gmail.com
26	UBUNGO	SINZA DISTRICT	DR SOPHIA KISOMA	715805669	kisomasophia@gmail.com
		MBEZI DISTRICT	DR VICTORIA MSOKWA	755903923	msokwavictoria@gmail.com
		MAKURUMLA DISTRICT	DR PIUS MNDOLWA	736447507	Piussmndolwa78@gmail.com
		MLOGANZILA DISTRICT	SR RENALDA KISHEWO	754501909	renaldakishewo@gmail.com
27	MWANZA	BUCHOSA	SAMWEL PETRO JIBUNGU	786607319	samweljibungu@gmail.com
		KWIMBA	YOHANA DOTO MABIRIKA	754017897	dotto_y@yahoo.com
		MAGU	MUSA JOSEPH ITEMBE	768081336	Mussaitembe2012@gmail.com
		MISUNGWI	DANIEL MAZENGO	745760754	mazengongosha@yahoo.com
		MWANZA EAST	COSMAS BALYOLUGURU	767590603	Cosmasbalyo255@gmail.com
		MWANZA NORTH	GLORIA MINJA	782501164	Glominja86@gmail.com
		MWANZA SOUTH	NGELEJA HAMISI GUMATI	764608438	ngelejahamic@yahoo.com
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		UKEREWE	COSMAS WANZALA	752719941	Cosmaswanzala2016@gmail.com

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		BUNDA TC	DR. NDONGO V. KITEJA	758223636	vicentgndongo@gmail.com
		BUNDA DC	DR. REVOCATUS M. MUGETA	784535866	mugetar11@gmail.com
		BUTIAMA DC	DR. ADVENTINA V. MWIPAGI	764046739	adventinamwipagi@gmail.com
		SERENGETI	DR. CHACHA P. MAROA	789508320	maroachacha79@gmail.com
		TARIME TC	DR. JUMA K. MASANGU	767651495	kisinzajuma@yahoo.com
		TARIME DC	DR. JOHN N. MUSIBA	784804272	Jnmusiba60@gmail.com
		RORYA DC	DR. RAPHAEL L. MOME	755810902	raphaelmome@yahoo.com
29	SINGIDA	IKUNGI DC	DR SHIJA M. MAHOJA	763864660	mhojashija51@gmail.com
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		SINGIDA MC	DR HERMAN KIMU	759350535	hermanmathias9@gmail.com
30	KATAVI	MLELE	FILIMINUS FESTUS	766358179	festusfiliminus@gmail.com
		TANGANYIKA	YOHANA YESAYA	759757027	jaemes22@gmail.com
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31	LINDI	KILWA DISTRICT	DR MAALAM SHABAN	656290405	Drmaalim2015gmail.com
		LINDI DC (MTAMA)	DR SAIDA KIDULA	782709525	Skidula6@gmail.com
		LINDI MUNICIPAL	ALLUTUPHINA DAMARU	784685028	allutuphinad@yahoo.com
		LINDI MUNICIPAL WEST	ASHIRAFU ALLY MASOUD	788985498	Ashirafmasoud08gmail.com
		RUANGWADISTRICT	DAKTA RAYMOND SHITIMA9	767267703	Shitima2011@yahoo.com
		NACHINGWEA DISTRICT	ATHUMANI YAHYA	674812322	athumaniyahya@ymail.com
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32	PEMBA	KASKAZINI PEMBA	KHALFAN NASSOR	773160988	khalfarito85@gmail.com
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