The United Republic of Tanzania

Ministry Of Health Community Development,
Gender, Elderly and Children

The National Tuberculosis and Leprosy Programme

Annual Report 2015

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National TB and Leprosy Programme (NTLP)
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List of Abbreviations

ACSM	-	Advocacy, communication, and social mobilization
AIDS	-	Acquired Immune Deficiency Syndrome
CDC	-	Centre for Disease Control
CSOs	-	Civil Society Organizations
CPT	-	Co-trimoxazole Preventive Therapy
CTCs	-	Care and Treatment Centres
CTRL	-	Central Tuberculosis Reference Laboratory
DAHW/GLRA	-	Germany Leprosy and Tuberculosis Relief Association
DDH	-	Designated District Hospitals
DTLCs	-	District Tuberculosis and Leprosy Programme Coordinators
DOT	-	Directly Observed Therapy
DR-TB	-	Drug Resistant Tuberculosis
DST	-	Drug susceptibility testing
EAPHLN	-	East African Public Health Laboratory Network
FMRF	-	Facility Monthly Report Form
GDF	-	Global Drug Facility
GDP	-	Gross Domestic products
GFATM	-	The Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria HIV
HMIS	-	Health Management Information System
IPT	-	Isoniazid preventive therapy
IUATLD	-	International Union Against TB and Lung Disease
KNCV	-	The Netherlands Tuberculosis Foundation
LEC	-	Leprosy Elimination Campaigns
MB	-	Multibacillary
MDR-TB	-	Multidrug-resistant tuberculosis
MDT	-	Multidrug therapy
MSH	-	Management Science for Health
NF	-	Novartis Foundation
NTLP	-	National Tuberculosis and Leprosy Programme
PB	-	Paucibacillary
PEPFAR	-	President's Emergency Plan for AIDS Relief

PTB	-	Pulmonary tuberculosis
R/RIF	-	Rifampicin
RTLCs	-	Regional Tuberculosis and Leprosy Programme Coordinators
TB	-	Tuberculosis
TLCU	-	Tuberculosis and Leprosy Central Unit
WHO	-	World Health Organization
UNITAID/FIND	-	Funds for Innovative New Diagnostic
USAID	-	United State Agency for International Development

ACKNOWLEDGEMENT

This report is the work of different stakeholders involved in the control of tuberculosis and leprosy in the country. The data presented in this report is generated by the general health workers and compiled by the district TB and leprosy coordinators under the supervision of the regional and national levels.

I take this opportunity to acknowledge their dedication to the control of the two diseases especially now when there is emergency of drug resistance tuberculosis (DR TB) and there is a global movement to eradicate leprosy as a public health problem.

I would also like to thank the Government of Tanzania for the dedicated commitment to control the two diseases and for mobilising resources from development partners to support the National TB and leprosy programme. In particular, I would like to recognise the financial support from:
Germany Leprosy and Tuberculosis Relief Association (DAHW/GLRA)
World Health Organization (WHO)
The Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM)
Centres for Disease Control (CDC)
International Union Against TB and Lung Diseases (IUATLD)
United States Agency for International Development (USAID)
Funds for Innovative New Diagnostic (UNITAID/FIND)
Novartis Foundation (NF)
Management Science for Health (MSH)
Global Drug Facility (GDF)
The Netherlands Tuberculosis Foundation (KNCV)

On behalf of the programme, I would like to express my sincere gratitude for the support and encouragement given to us by the Minister for Health, Community Development, Gender, Elderly and Children, the Permanent Secretary, Chief Medical Officer and all of the Directors.

Dr. Beatrice Mutayoba
Programme Manager - NTLP
October 2016

1.0 GENERAL BACKGROUND

1.1 Demographic and social economic profile

The population of Tanzania in 2015 was projected to be 48,716,461 based on 2012 national census. According to projected population, female make up is 51% of the total while male are 49%. The population of urban inhabitant was 29.6 % of total population. About 52% of the population are the working age (15 – 64); 44% are young (0 – 14 years) while 4% are elderly (65+ years).The annual growth rate is estimated at 2.7% from 2002 to 2012 census. The population of Zanzibar is projected at 1,381,201 with a growth rate of 2.8%. Agriculture is still a major source of livelihood for majority of the population in Tanzania.

According to World Bank report, 2013 per capita income (GDP per capita) is US $ 694.77 categorizing Tanzania as a low income country. However, in the past five years the country has enjoyed good progress in economic growth averaging above 6%.

1.2 Summary of health services

Health care delivery system in the country is well established with more than 7,214 health facilities. The major provider of health services is the government, which own or run 69% of all the health facilities including the Designated District Hospitals (DDH).Tanzania is classified as one of the least developed countries, with total expenditure on health per capita of US$ 126 (WHO).

Tuberculosis and leprosy control services are divided into three major categories which are case finding, diagnosis and treatment services. In 2015 there were 3,512 health facilities providing Tuberculosis treatment services and have a TB unit register, these health facilities are known as DOT centres. Among these DOT centres 1,076 health facilities provided TB diagnosis by at least microscopy services. On leprosy services there are 1,500 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) of the Ministry of Health and Social Welfare shows that communicable diseases are still the major cause of morbidity and mortality in the country driven by HIV epidemic with national prevalence of 5.3% in the population aged 15-49 years. TB has continued to be among the top ten cause of death and is ranked 6th among admission aged five years and above in the country.

1.3 Summary of NTLP activities

In the period of January – December 2015, NTLP was shifting from Implementing the NSP IV (2009- 2015) to its new NSP V 2015 - 2020. All activities conducted focused on addressing NSP strategic objectives i.e. (i) Achieve universal access to quality DOTS and MDT services in both public and private sectors. (ii) Reduce the burden of TB/HIV and drug resistant TB with special emphasis on vulnerable populations. (iii) contribute to health system strengthening based on primary health care (iv) scaling up involvement of more private health care providers (v) empowering patients and community members to take active participation in TB and Leprosy prevention and care (vi) reducing new Leprosy cases with disability grade 2 (vii) collaborating with internal and external partners in conducting relevant operational research.

1.4 Financial Support

The Ministry of Health and Social Welfare through National Tuberculosis and Leprosy Program (NTLP) received approximately USD 9,479,569.64 through government consolidated funds, external grants and loans in year 2015. Government resources channeled through the program for program management and at lower levels to support the health system and infrastructure maintenance as well

as staff remuneration for staff working (nurses, clinicians and lab staff a lower levels we made a full time equivalent approximation) for TB.

Direct cash was received from Centers for Disease Control and Prevention (CDC) grant, The Global Fund (GFR6 – TFM & BF) grant, The World Bank (IDA) loan, German TB and Leprosy Relief Association (GLRA) grant and World Health Organization (WHO) grant as detailed below.
Many other local research institutions, academia, private sector organizations and community based Civil Society Organizations (CSSOs) not herein mentioned were also active partners/collaborators in various TB interventions:

Table 1: Source of Funds

S/N	Source of Funds	Amount in US$
1.	Government Contribution	1,897,072.00
2.	Germany Leprosy Relief Association GLRA	206,661.00
3.	Centre for Disease Control and Prevention CDC	2,209,580.00
4.	World Health Organization – TDR (carried forward from previous period)	18,734.64
5.	GFATM (carried forward from previous period)	5,143,432.00
6.	World Bank (IDA)	4,090.00
TOTAL FUNDS		**9,479,569.64**

2.0 HUMAN RESOURCE DEVELOPMENT

The Programme is composed of both permanent and contractual employees at the central unit (TLCU) with focus on strengthening TB and Leprosy services in the country. Contract employees were recruited through various grant support including GFATM and CDC/PEPFAR.

2.1 Staff establishment

In this reporting year there were 42 staffs at central level and 30 staffs at regional level identified as Regional Tuberculosis and Leprosy Programme Coordinators (RTLC). New DTLCs and TB/HIV Officers were also deployed in the district councils. In councils which were not fully established, DTLCS from the mother councils continued to oversee and coordinate TB and leprosy control activities in the newly established district councils until when they are fully fledged to own their coordinators. During this period, four one contract staff left the program at Central unit for other opportunities, one retired and five new officers joined the program.

The list of TLCU staff by December 2015 was as follows:

1. Dr Beatrice Mutayoba - Programme Manager
2. Dr Liberatus Mleoh – Deputy Programme Manager
3. Ms Limo Ghasia – Health Secretary
4. Mr Didas Kayumba – Programme Administrator
5. Dr Johnson Lyimo - MDR TB Coordinator
6. Dr Vedastus Kamara – Leprosy Coordinator
7. Ms Diana Kasembe – Training Coordinator
8. Dr Joyce Wanze - TB/HIV Coordinator
9. Dr Allan Tarimo – Public Private Partnership Coordinator
10. Dr Zuweina Kondo-Sushy – Monitoring and Evaluation Coordinator
11. Mr Jumanne Mkumbo – Pharmacist
12. Mr. Bariki Brown - Pharmacist
13. Ms Lilian Ishengoma – Community TB care Coordinator
14. Ms Agatha Mshanga – ACSM Coordinator
15. Mr Paul Shunda – Orthopaedic Technologist
16. Ms Neema Voniatis – Procurement and Supplies Coordinator
17. Ms Elda Magawa - Procurement and Supplies
18. Ms Basra Doulla – Head, National TB Reference Laboratory
19. Mr Salim Bossy – Senior Laboratory Technician
20. Ms Daphne Mtunga – Laboratory Technician
21. Mr. Amri Kingalu – National TB Reference Laboratory Manager
22. Mr Emmanuel Nkiligi – Data Manager
23. Ms Christine Chipaga - Data entry clerk
24. Ms Grace Tairo - Data entry clerk
25. Ms Khadija Kassim - Data entry clerk
26. Mr Mashaka Penza - Data entry clerk
27. Mr Nsubisi Mwangaba – Information Communication Technologist
28. Mr Abbakari Msafiri – Data Analyst
29. Mr Bakari Msuya - Head Accountant
30. Mr Lugano Ross – Accounts Assistant
31. Ms Sophia Temba - Accountant
32. Mr Joachim Kizzuri - Accountant
33. Mr. Augustus Machumi – Accountant
34. Ms Amina Ponera - Secretary

35. Ms Martha Haule - Secretary
36. Mr Paulo Kalombora – Office Attendant
37. Mr Raymond Shirima – Data Analyst
38. Mr Eneas Mdika - Driver
39. Mr Abdallah Shabani – Driver
40. Mr David Kanyandeko – Driver
41. Mr Beno Tayari - Driver
42. Mr Komba - Driver

2.1.1 Regional Tuberculosis and Leprosy Coordinators (RTLCs)

During this period one RTLC from Ruvuma region Dr William Mtumbuka retired from government employee. By the end of 2015 there were 30 RTLCs who coordinated TB and Leprosy control services at regional level in Tanzania mainland and 2 RTLCs from Zanzibar. Their names and respective regions are listed below:

1. Dr Edna Ntulwe – Arusha
2. Dr Mrisho Lupinda - Kinondoni
3. Dr Mary Kenedy Chiryamkubi – Temeke
4. Dr Seif Mbarouk – Ilala I
5. Dr Ibrahim. Mteza – Ilala II (Muhimbili & Private Hospitals, Dar es Salaam)
6. Dr Martin Massimba – Dodoma
7. Dr Tecla Orio – Iringa
8. Dr Mussa Ndyeshobora - Kagera
9. Dr Festo Baranuba – Kigoma
10. Dr Geoffrey Chelangwa – Kilimanjaro
11. Dr Abasi Pegwa – Lindi
12. Dr Martin Khan – Mara
13. Dr Qamara Qawoga – Manyara
14. Dr Yahaya Msuya – Mbeya
15. Dr Emmanuel Tenga – Morogoro
16. Dr William Byemelwa – Mwanza
17. Dr Mohamed Kodi - Mtwara
18. Dr Aden Mpangile – Pwani
19. Dr Dismas Buhili - Rukwa
20. Dr Xavier Mbawalla – Ruvuma
21. Dr John Majigwa – Shinyanga
22. Dr Mussa Kimala – Singida
23. Dr Sebastian Honorati Pima - Tabora
24. Dr Sakeo Kiluwa – Tanga
25. Dr Emmanuel John - Simiyu
26. Dr Deus Kalaso - Njombe
27. Dr Abdul Majid - Katavi
28. Dr Michael Mashalla - Geita
29. Dr Obed Mshana - Unguja
30. Dr Said Alli Hamad - Pemba

2.2 Capacity building: Training and coordinative meetings

2.2.2 Trainings

During this year, various trainings were conducted among healthcare workers with funding from WHO, CDC/PEPFAR and GLRA sources. The trainings covered mostly on Collaborative TB/HIV Management activities, Comprehensive HIV/AIDS Management, Paediatric TB management, Paediatric TB/HIV Management and New Optimised Logistics System for TB and Leprosy medicines. The purpose of these trainings were to build capacity of healthcare workers towards improving quality of care in those areas. The reported trainings are summarised in the table below.

Table 2: Health workers trained on different courses in 2015

S/N	Name of the Training	Regions covered	No. of participants
1	Collaborative TB/HIV management	Njombe, Tabora, Morogoro and Mtwara	92
2	Comprehensive HIV/AIDS Management	Tanga and Mtwara	53
3	Paediatric TB Management	Mtwara, Morogoro, Lindi, Singida, Ruvuma, Iringa, Tanga, Simiyu, Njombe, Temeke and Mbeya	284
4	Paediatric TB/HIV Management	Mbeya	31
5	New Optimised Logistics System for TB and Leprosy medicines	Morogoro, Pwani, Dar es Salaam, Mwanza, Shinyanga, Simiyu, Mara, Kagera, Geita, Singida, Dodoma, Manyara, Kilimanjaro, Arusha, Tanga, Lindi, Mtwara, Mbeya, Rukwa and Katavi	2,969
		Total	**3,429**

2.2.3 Coordinative Meetings

Quarterly meetings were conducted for RTLCs and DTLCs in the regions and districts respectively. The NTLP Annual meeting was conducted in Dodoma in November 2015 which brought together all the regional coordinators and other key stakeholders. The platform was used to discuss the strategies in order to increase case detection and improve TB and leprosy care services. The first TB, TB HIV Partner's meeting was also conducted in November 2015 which brought together the Implementing partners who are involved in TB and TBHIV in the country.

3.0 TUBERCULOSIS CONTROL SERVICES

3.1 Tuberculosis case notification in 2015

A total of 62,180 cases of all forms were notified in 2015, which shows a decline of 1.5% or 971 cases compared to the year 2014. Among the cases notified, new cases were 59,746 (96%) and the previously treated cases were 2,434 (4%) which is almost the same proportions for the past three years. Among the new TB cases, 24,290 (39%) were bacteriologically confirmed, 22,777 (37%) were clinically diagnosed and 12,679 (20%) were extra-pulmonary TB. Table 2 below shows the comparison of TB notification in 2014 and 2015 by TB classification groups.

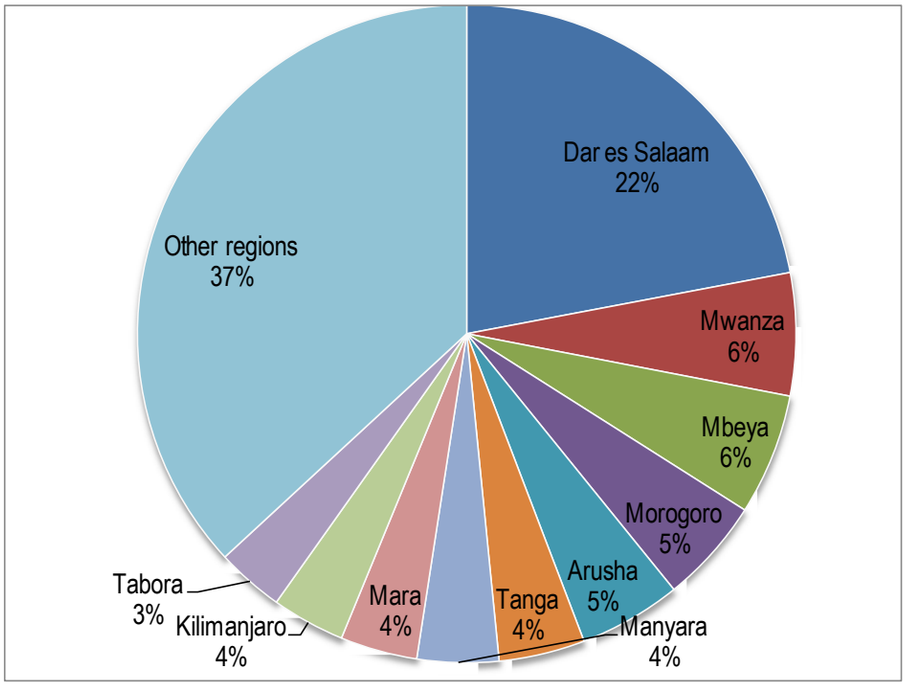
Table 3: Tuberculosis cases notified in Tanzania 2014 – 2015

Indicators	2014		2015		Change	
	Cases	%	Cases	%	num.	%
All forms	63,151		62,180		-971	-1.5
New Cases						
- Bacteriological confirmed TB cases	23,547	37.3	24,290	39.1	743	3.2
- Clinically diagnosed TB cases	23,587	37.4	22,777	36.6	-810	-3.4
- Extra-pulmonary	13,441	21.3	12,679	20.4	-762	-5.7
Total	**60,575**	**95.9**	**59,746**	**96.1**	**-829**	**-1.4**
Previously treated						
- Relapse	998	1.6	1,149	1.8	151	15.1
- Failure	126	0.2	99	0.2	-27	-21.4
- Return after lost to follow up	295	0.5	244	0.4	-51	-17.3
- others	1,157	1.8	942	1.5	-215	-18.6
Total	**2,576**	**4.1**	**2,434**	**3.9**	**-142**	**-5.5**

3.1.1 Tuberculosis notification by regions

Dar es Salaam city has remained as the major contributor of TB cases notification contributing making over 22% of all cases notified. At the same time, about 50% of cases notified were obtained from only 6 regions of Dar, Mwanza, Mbeya, Morogoro, Arusha and Tanga. Mwanza and Mbeya regions come as second contributed 6% each of the total notification. Tabora, for the first time has come into ten regions with higher notification replaced Shinyanga. Figure 1 below shows percentage of contribution of TB cases among the top ten regions.

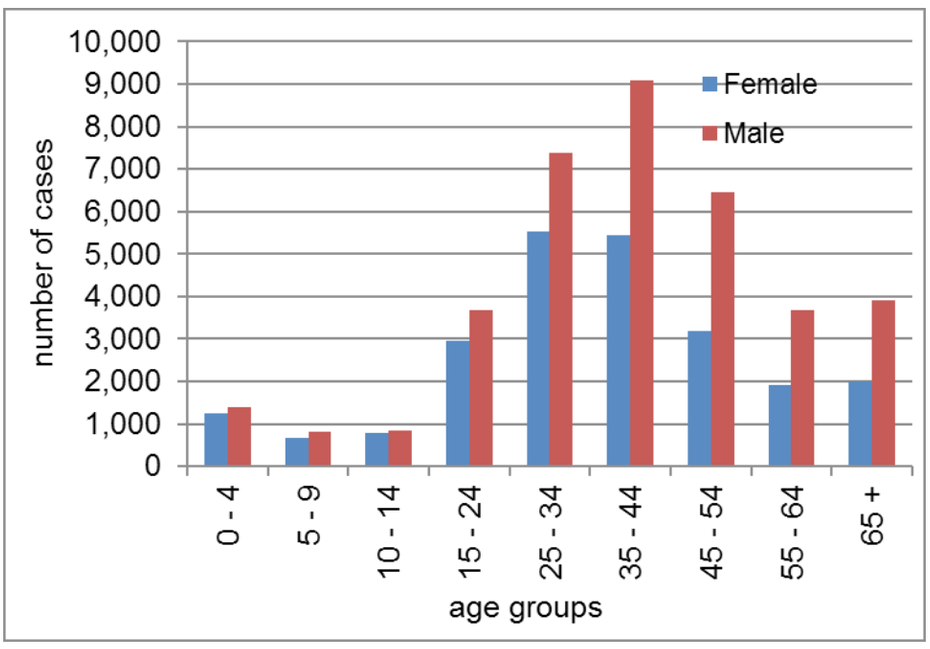
Figure 1: Distribution of TB cases notified by regions in 2015



3.1.2 Tuberculosis case notifications disaggregated by sex and age

The age-sex distribution of the new and relapse TB cases notified in 2015 shows that 37,176 (61%) cases were males and 23,708 (39%) 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 5,699 (9.4%). 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 summarised in Figure 2 below.

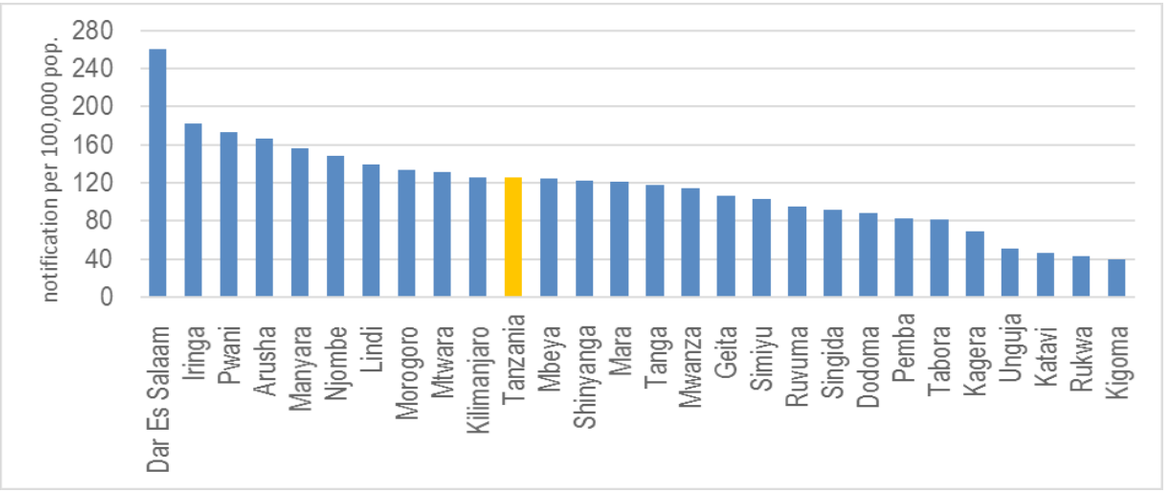
Figure 2: Age and Sex distribution of new and relapse TB cases notified in 2015



3.1.3 Tuberculosis notification rate

The notification rate of new and relapses TB cases was 125 cases per 100,000 population which was smaller compared to that of 2014 that was 130 per 100,000 population. Dar es Salaam region had the highest TB notification rates in the country at 260 cases per 100,000, Kigoma region has the lowest TB case notification rate of 40 cases per 100,000, followed by its neighbours in the south, Rukwa (43) and Katavi (47). Ten regions has notification rate of above national average are: Dar es Salaam; Iringa; Pwani; Arusha; Manyara; Njombe; Lindi; Morogoro; Mtwara and Kilimanjaro. The notifications rates for Unguja and Pemba have been presented separately but in comparison to administrative regions in the Mainland. The figure below shows notification rate of TB cases by regions and Zanzibar.

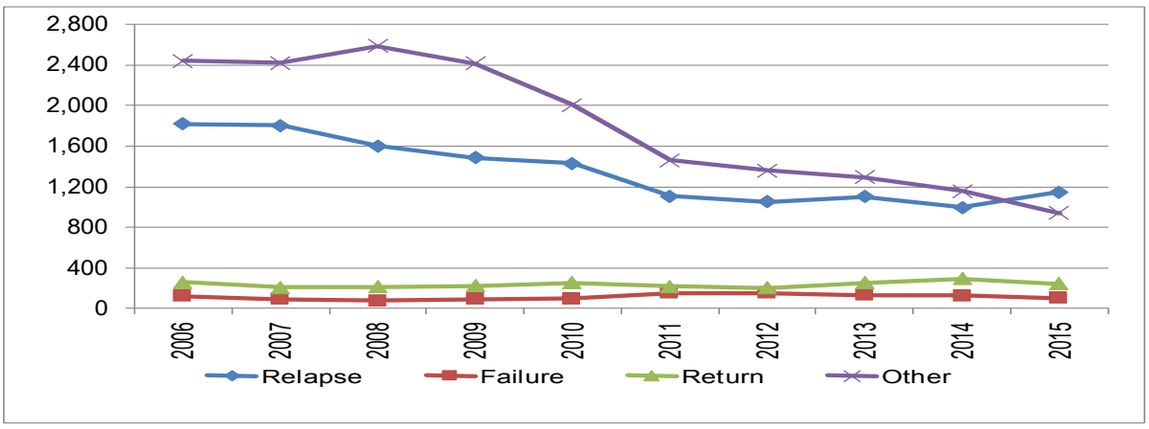
Figure 3: Notification rate TB new and relapses cases notified by region for 2015



3.1.4 Previously treated cases of Tuberculosis

Previously treated TB cases notified in 2015 were 2,434 cases which is 3.9% of all cases notified in the country. Among them relapse cases contributed 47% of all previously treated cases. The gradual decline of previously treated patients in both absolute numbers and percentages continued to be observed even in the year 2015. The decline noted in the following three groups with their negative percentage change shown in brackets; Treatment after failure patients (21%); treatment after lost to follow up patients (17%) and previously treated patients (19%). The noted increase in relapses cases and downward trend in other previously treated cases may have been contributed by the change in definitions of these groups. The figure below shows the trend of re-treatment cases for the past ten years.

Figure 4: Trends of Previously Treated TB cases notified form 2006 to 2015



3.2 Tuberculosis treatment outcome for cohort notified in 2014

3.2.1 New and relapse cases

Analysis of the 61,573 TB cases notified in 2014 shows that the overall treatment success for new and relapse cases was 90%, improved by 0.7% compared to 2013 cohort. 3,501 (6%) died while still on treatment, 122 (0.2%) failed treatment and 1,224 (2%) lost to follow up. During the same reporting year, the number of TB cases which were not evaluated due to being transferred out of their respective regions was noted still higher at 1,261 (2%).

The treatment outcomes for individual groups of TB vary from 91% treatment success rate for new smear positive TB to 83% of TB relapses. The table below summarizes treatment outcomes of groups.

Table 4: TB treatment outcome of all forms of new and relapses notified in 2014

Treatment Outcomes	B.CONFIRMED		CLINICALY DIAG.		EXTRAPULMONARY		RELAPSE		ALL FORMS	
	number	%	number	%	number	%	number	%	number	%
Cured	19,960	85		0		0	769	77	20,729	34
T.Completed	1,369	6	21,025	89	12,264	91	78	8	34,736	56
Treatment Success	21,329	91	21,025	89	12,264	91	847	85	55,465	90
Failure	96	0.4		0		0	26	3	122	0.2
Died	994	4	1,528	6	901	7	78	8	3,501	6
Loss to foll up	549	2	435	2	207	2	33	3	1,224	2
Evaluated	22,968	98	22,988	97	13,372	99	984	99	60,312	98
Notified	23,547	100	23,587	100	13,441	100	998	100	61,573	100

The trend of treatment outcomes of the new and relapse cases for over decade, the treatment success rates have improved from about 80% in 2001 to 91% in 2014 and consistently maintained above 85% since 2005. Similarly the death rate has progressively been declining since 2006 from 8% to 6% in 2014.

3.2.2 Previously treated TB cases notified in 2014

In 2014, 1,578 previously treated TB cases excluding the relapse were notified, 1,528 (97%) cases their treatment outcomes are available. Among the evaluated cases: 1,312 (83%) were treated successfully; 15 (1%) failed treated while 139(9%) cases died while in still on TB treatment almost similar proportions as for the year 2013. Number of TB cases lost to follow up were 62 (4%) of all previously treated cases. Table 4 and figure 5 below summarizes the treatment outcomes for each category of the re-treatment cases.

Table 5: Treatment outcomes of previously treated (except relapse) cases notified in 2014

Treatment Outcomes	FAILURE		LOST TO FOLLOW		OTHERS		ALL FORMS	
	number	%	number	%	number	%	number	%
Cured	78	62	167	57	0	0	245	16
T.Completed	6	5	57	19	1,004	87	1,067	68
Treatment Success	84	67	224	76	1,004	87	1,312	83
Failure	12	9.5	3	1.0	0	0.0	15	1.0
Died	5	4	23	8	111	10	139	9
Loss to foll up	5	4	33	11	24	2	62	4
Evaluated	106	84	283	96	1,139	98	1,528	97
Notified	126	100	295	100	1,157	100	1,578	100

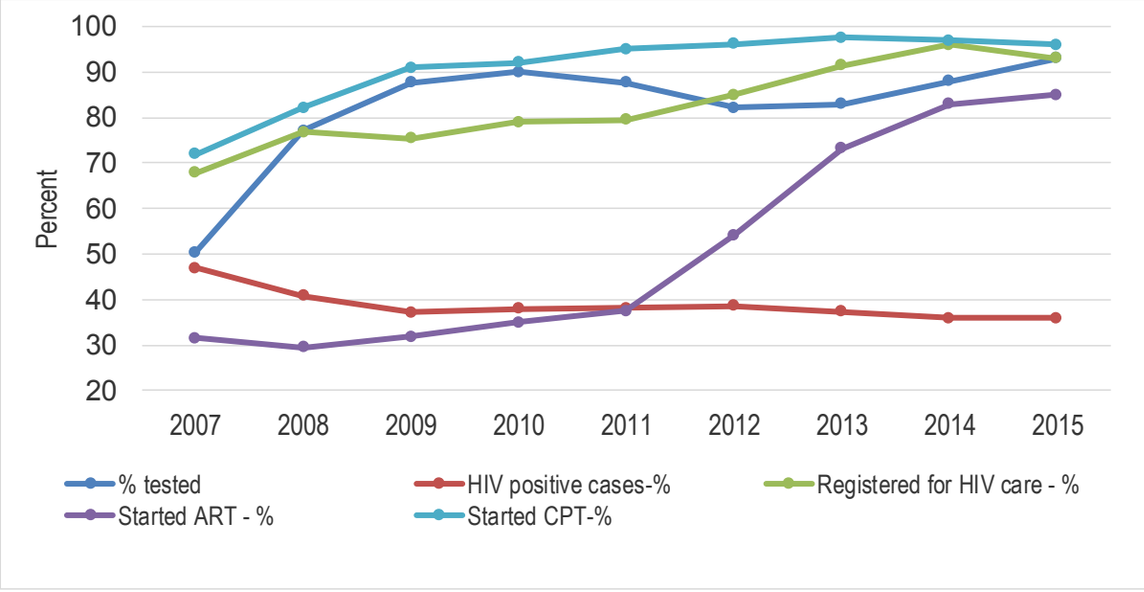
3.3 TB/HIV Services

3.3.1 TB/HIV case finding 2015

In the year 2015, 58,136 (93%) of all TB cases notified were had have their HIV test results recorded at time of notification, which was higher the than of 2014 data which stood lower at 88%. Among the

tested, 20,814 (36%) were cases were found to be co-infected with HIV which is same percentage as co-infection rates found in 2014. Furthermore, analysis shows that of the co-infected cases 19,407 (93%) cases were registered at HIV care and Treatment clinics (CTCs) for care and treatment services, 19,925 (96%) were put on Co-trimoxazole Preventive Therapy (CPT) while 17,618 (85%) were initiated ART in at both TB clinic and CTCs. Figure 6 below summarizes the trend of TB/HIV indicators in the country from 2007 to 2015 with significant gains in the proportion of those initiated ART especially after the year 2011.

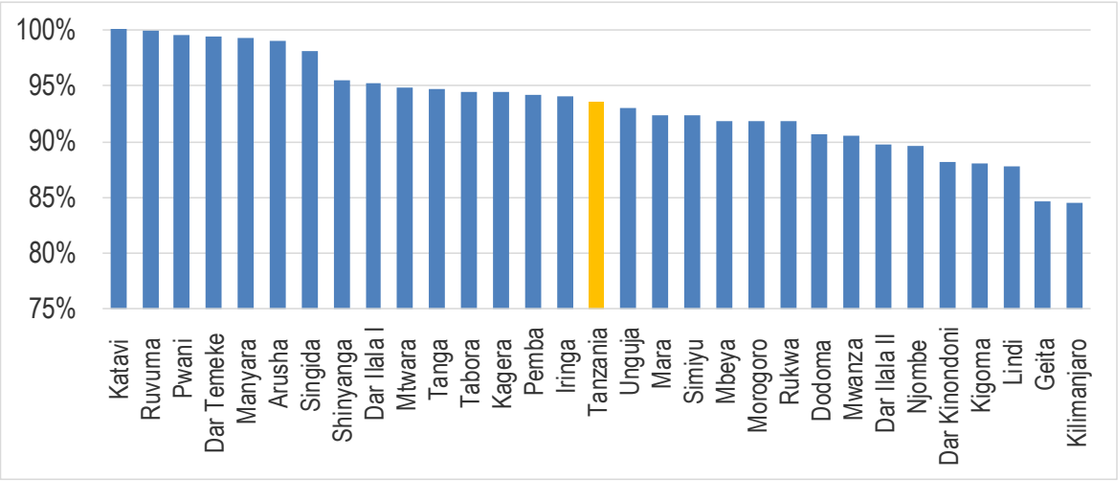
Figure 5: Trend of TB patients counselling and testing for HIV, initiated CPT and ART: 2007 – 2015



3.3.2 Regional performance on HIV testing and counselling and ART uptake

HIV counselling is entry point for accessing HIV care, treatment and preventive services. In 2015 the national average was 93% which is below WHO target of 100%. The majority of the regions are above the national average and Unguja in addition to few regions are below the average which included: Dar Kinondoni, Dodoma, Geita, Kigoma, Lindi, Mara, Mbeya, Morogoro, Njombe, Dar Ilala II, Kilimanjaro, Mwanza, Simiyu and Rukwa.

Figure 6: HIV testing among TB patients in 2015 by regions



3.3.3 TB treatment outcomes of TB/HIV case notified 2014

Analysis of the 21,769 co-infected TB/HIV cases notified in 2014 shows that treatment success rate of all forms was 88% which is almost similar to the rest of other notified TB cases. 1,732 (8%) died while still on treatment showing that there were more deaths in among co-infected TB/HIV cases by 2% compared to the general cohort and 402 (2%) lost to follow up. During the same reporting year, the number of TB cases which were not evaluated due to being transferred out of their respective regions was noted still higher at 467 (2.1%) The table below summarizes treatment outcomes of groups of the co-infected TB/HIV cases.

Table 6: Treatment outcomes of co-infected TB/HIV cases notified in 2014

Treatment Outcomes	B.CONFIRMED		CLINICALY DIAG.		EXTRAPULMONARY		PREVIOUSLY TREATED		ALL FORMS	
	number	%	number	%	number	%	number	%	number	%
Cured	5,323	80		0		0	396	36	5,719	26
T.Completed	452	7	8,054	88	4,200	87	688	62	13,394	62
Treatment Success	5,775	87	8,054	88	4,200	87	1,084	98	19,113	88
Failure	37	1		0		0	18	2	55	0
Died	469	7	706	8	444	9	113	10	1,732	8
Loss to foll up	134	2	143	2	77	2	48	4	402	2
Evaluated	6,415	97	8,903	97	4,721	98	1,263	114	21,302	98
Notified	6,626	100	9,204	100	4,828	100	1,111	100	21,769	100

3.4 Paediatric TB

3.4.1 Childhood TB notifications 2015

In 2015, 5,699 (9.4%) of the new and relapse TB cases notified were children under the age of 15 years. Among children (under 15 years) notified, 2,633 (46.2%) were children under the age of 5, while 1,457 (25.6%) cases were children between age group of 5 -9 years and 1,610 (28.2%) were children in the age-group 10 – 14 years.

The distribution of children under age of 15 notified according to classification of TB groups shows that new clinically diagnosed TB cases were 3,130 (54.9%) forming a larger part, followed by new extra-pulmonary TB cases that were 2,039 (35.8%) while new bacteriologically confirmed TB cases and relapse were 506 (8.9%) and 24 (0.4%) respectively.

3.4.2 Childhood TB/HIV notifications 2015

Testing and counselling for HIV is also done to children (under the age of 15) attending the TB clinics. In 2015 data shows that 5,481 (96%) of notified children were tested for HIV and 1,613 (29%) were HIV and TB co-infected cases. Among all the co-infected children notified, 1,562 (97%) were registered for HIV care services, 1,585 (98%) were started on CPT and 1,406 (87%) were on or started ART at time of diagnosis.

Further analysis of the data shows that, among all tested and counselling for HIV TB cases children (under the age of 15) is 8%, while those started ART and CPT were 8% and 8% of all HIV and TB co-infected cases respectively. ???

3.4.3 IPT provision to Children

All children younger than 5 years in contact with a sputum smear-positive PTB patient 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 2015, a total of 1,319 children in contact of smear positive TB cases were provided with IPT.

3.5 MDR-TB

A total of 23 regions notified MDR TB patients that were ultimately started on MDR TB treatment in 2015. A total of 124 MDR TB patients were enrolled to start second line treatment in 2015. As in previous years, the majority of MDR TB cases enrolled on treatment were from Dar es salaam (32%) followed by Dodoma (8%), Mwanza (6%), Tanga (6%), Kilimanjaro (6%) as illustrated in figure 10 below. Of these 121 were enrolled at Kibong'oto TB hospital and 3 at Ukonga Prisons decentralized site. Overall, the was a 13% decline as compared to 2014 enrollment that was due to frequent stock out of genexpert cartridges in 2015 (figure 8). Among enrolled patients, a male predominance continued to be observed with 88 (71%) being male. Among enrolled cases, 36 (29%) were HIV positive which was lower than the preceding year at 45% (2014), 39% (2013), 27% (2012) and 19% (2011). The lower HIV notification among the MDR cohort in 2015 may be attributable to lower utilization of xpert MTB/RIF machines secondary to scarcity of cartridges. As in the previous year, the age groups bearing the brunt of MDR TB among, was the younger, economically active age group from 25 – 44 (Figure 9 below).

Figure 7: MDR TB Patients enrolment 2009 - 2015

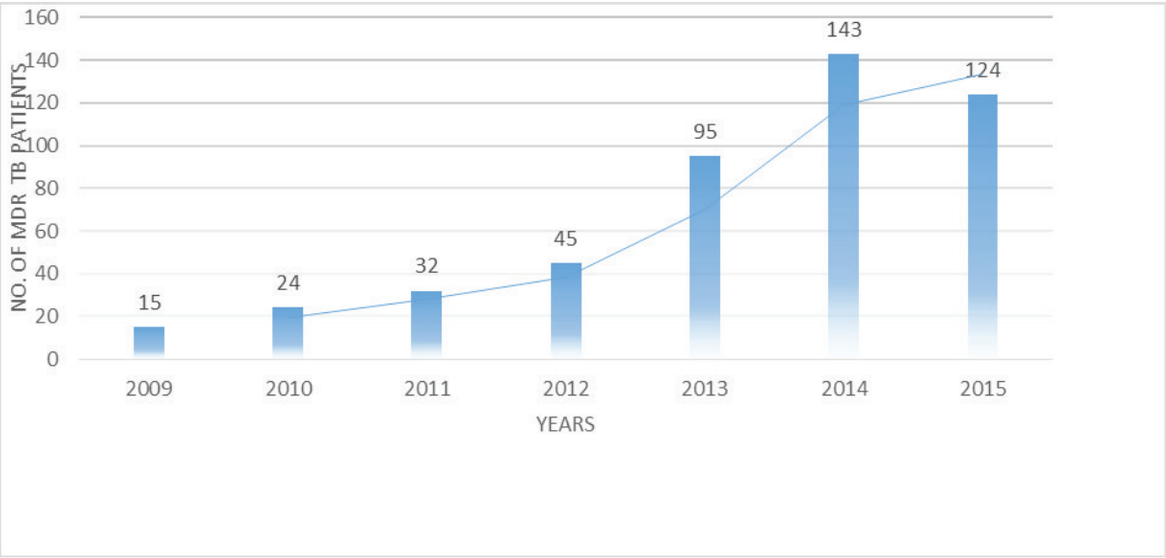


Figure 8: Age distribution of MDR TB patients

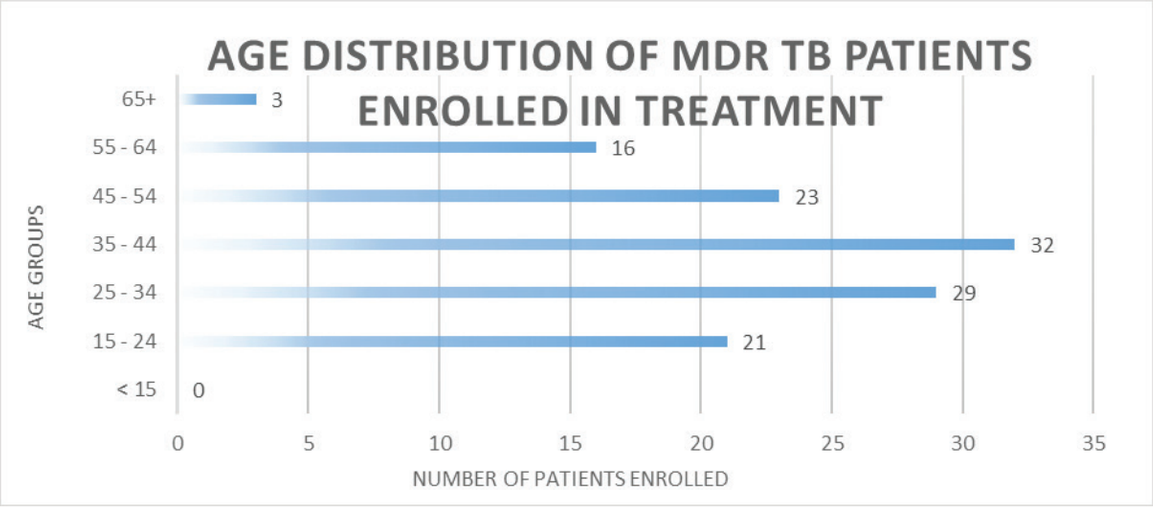
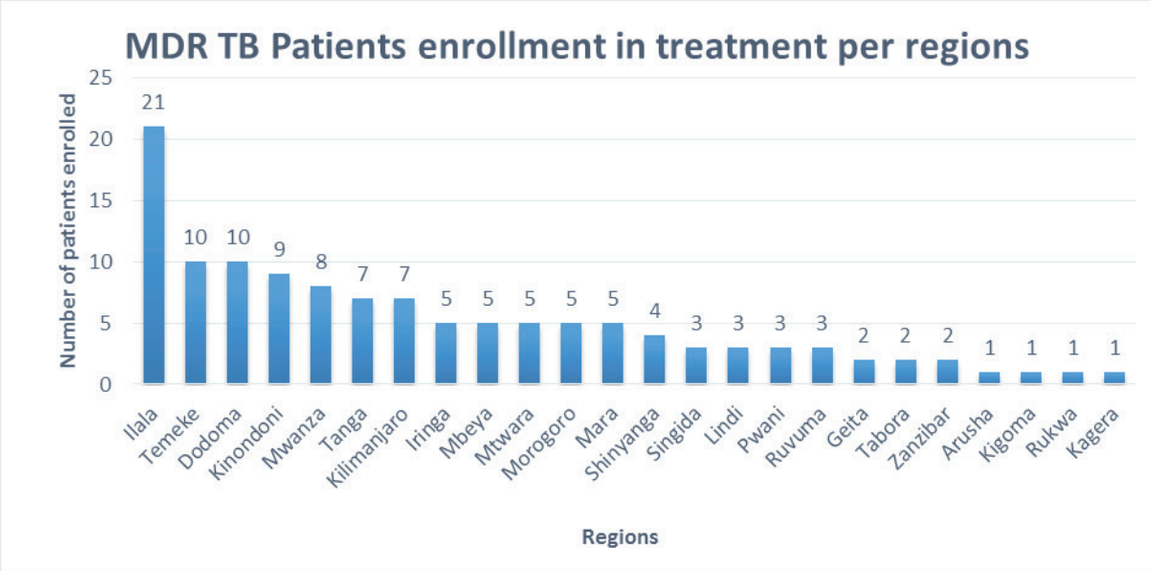


Figure 9: Distribution of MDR TB cases enrolled on treatment by regions in 2015



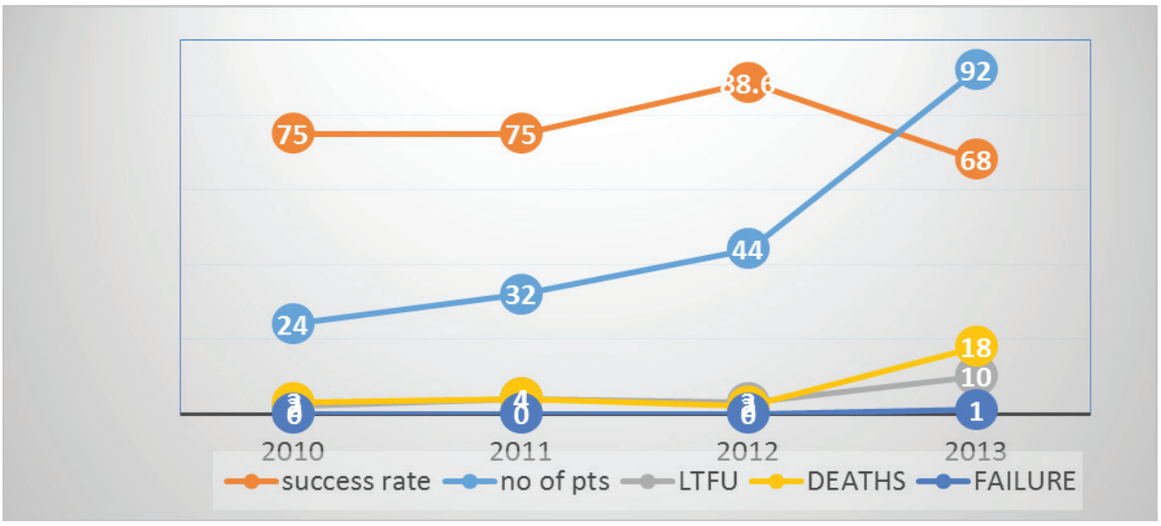
3.5.1 DR-TB case finding

A total of 92 patients were enrolled in 2013, 28 (30%) were female and 64 (70%) were males. The age of enrolled cases ranged from 2 to 84 years old with a median age of 39 years old. Those aged from 15 – 35 years were the most affected with MDR TB disease and HIV co-infection was present in 35 (38%) whereas 57 (62) were HIV negative

3.5.2 Treatment outcomes;

Of all enrolled 92 patients 63 (68%) were successfully treated (cured + treatment completed). Those with unfavorable outcome include; 18 (20%) patients died, 10 (11%) patients defaulted and 1 (1%) patient whose treatment failed. A review of trends of treatment outcomes from 2009 (figure 11) showed the treatment success rate to have dropped in 2013 with the most contributory factor being a spike in mortality. Further review of the mortality data revealed that most deaths occurred at older and younger groups, in more males than females and patients who had been in treatment for less than 6 months. HIV status was not a significant contributor as most deaths occur among the HIV negatives 14 (78%) than the HIV positives 4 (22%). The extreme of age groups and the early timing of deaths may be a result of lack of monitoring tests for second line drugs toxicities since most of these reagents are out of stock at the admitting hospital and peripheral decentralized sites. The programme should mobilize funds to ensure that all enrolled MDR TB patients have access to these tests. Figure 11:

Figure 10: Trends of treatment outcomes



Available 6 month interim results for 23 patients enrolled in quarter two 2015 showed the target of loss to follow at 6 months as met (Table 5), also for these patients the early trend data still showed a higher than normal mortality rate that is partly contributed by lack of toxicity monitoring test.

Table 7: Interim Outcomes, 2015

6 months interim outcomesIndicator	Target	Results %(n)	Target achieved?
The percent of patients who default within the first six month of treatment	<10%	0% (0)	MET
The percent of patients with an unknown culture and smear status	<15%	4.3% (1)	MET
The percent of patients with culture conversion within the first six months	>=80%	78.3% (18)	NOT MET
The percent of patients dying within the first six months	<10%	17.4% (4)	NOT MET

4.0 LEPROSY CONTROL SERVICES

4.1 Leprosy Case Notification

In years 2015, a total of 2,422 leprosy cases (all forms) were notified and reported in the country, which shows an increase of 287 cases or 13% compared to the year 2014. Among the notified leprosy cases, new leprosy cases were 2,297 (95%), relapses were 80 (3.3%) cases while return after defaulter were 45 (1.7%) of all reported cases of leprosy. The number of relapses in Tanzania has persistently remained very high as of the past 15 years and this pose a challenge of whether the notified cases were all truly leprosy diseased. In the year 2015, over 50% of notified relapse cases were reported from in only four regions of Mtwara (15), Shinyanga (10), Lindi (9) and Geita (8).

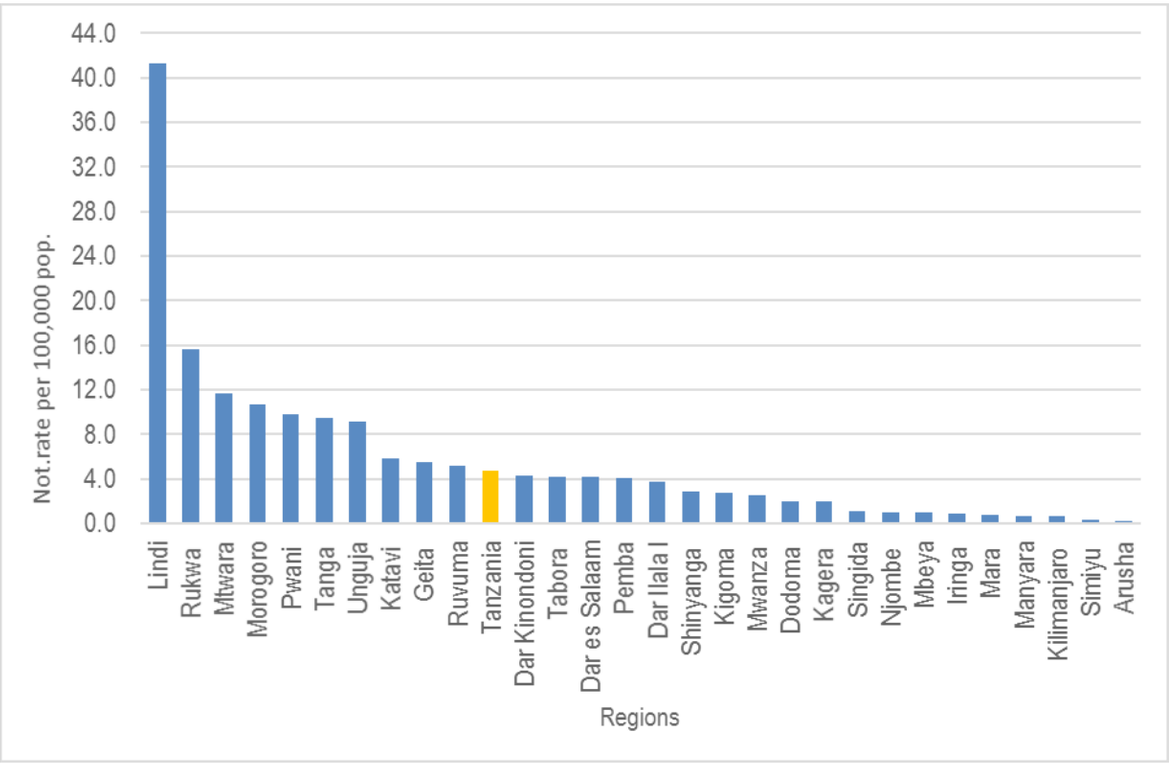
Table 8: leprosy cases reported in 2015

Leprosy Classification	2014		2015		Change	
	Cases	%	Cases	%	cases	%
All forms	**2,135**		**2,422**		**287**	**13.4**
New cases						
- MB	1,632	80.8	1,902	82.8	270	16.5
- PB	387	19.2	395	17.2	8	2.1
Total	**2,019**	**94.6**	**2,297**	**94.8**	**278**	**13.8**
Re-treatment						
- Return after default	49	42.2	45	36.0	-4	-8.2
- Relapse after MDT	67	57.8	46	36.8	-21	-31.3
- Relapse after DDS/Others		0.0	34	27.2	34	
Total	**116**	**5.4**	**125**	**5.2**	**9**	**7.8**

4.1.1 New leprosy cases notified in 2015

In 2015, a total of 2,297 new leprosy cases were detected in the country, the annual notification rate (case detection rate) was calculated at 4.7/100,000. The data shows that Lindi region had the highest leprosy notification rates in the country at 41 cases per 100,000 population. Arusha has the lowest leprosy notification rate of 0.2 cases per 100,000, followed by Simiyu (0.3) and Kilimanjaro (0.6). Ten regions with notification rate of above national average were: Lindi; Rukwa; Mtwara; Morogoro; Pwani; Tanga; Unguja; Katavi; Geita and Ruvuma. The figure below shows leprosy notification rate by region.

Figure 11: Leprosy notification (detection) rate by region for 2015

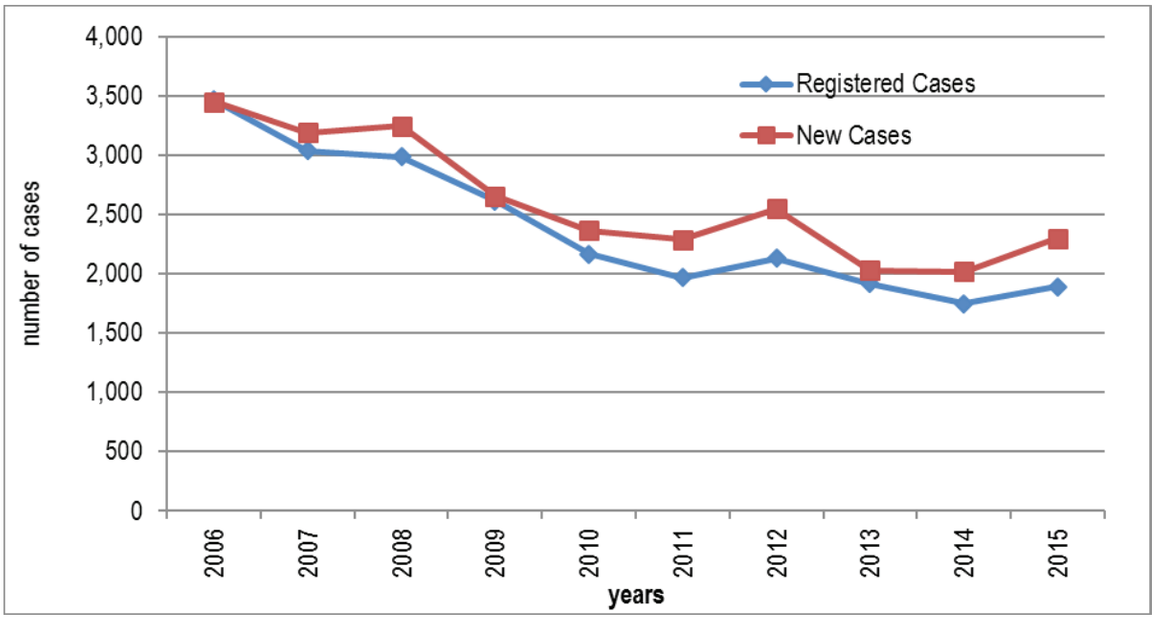


Among the new cases notified, 1,902 (83%) were MB and 395 (17%) were PB. Females were 906 (39%) giving a female to male ratio of 1:1.5 suggesting that being male continues to be suggestive of risk factor. The number of children among the new cases remained higher at 92 or 4% like those reported in 2014. New leprosy cases notified with disability grade II were 287 or 12% which was same as those reported 2014 at 12% indicating that many cases continue to be detected late. Table 5 below summarizes indicator data on new leprosy cases notified in 2015 by regions and those having disability grade II according to WHO classification. However, the trend of new leprosy cases detected for the past 20 years shows tremendous decline country wide as is displayed in figure 12.

Table 9: New leprosy cases detected by indicators in 2015 by regions

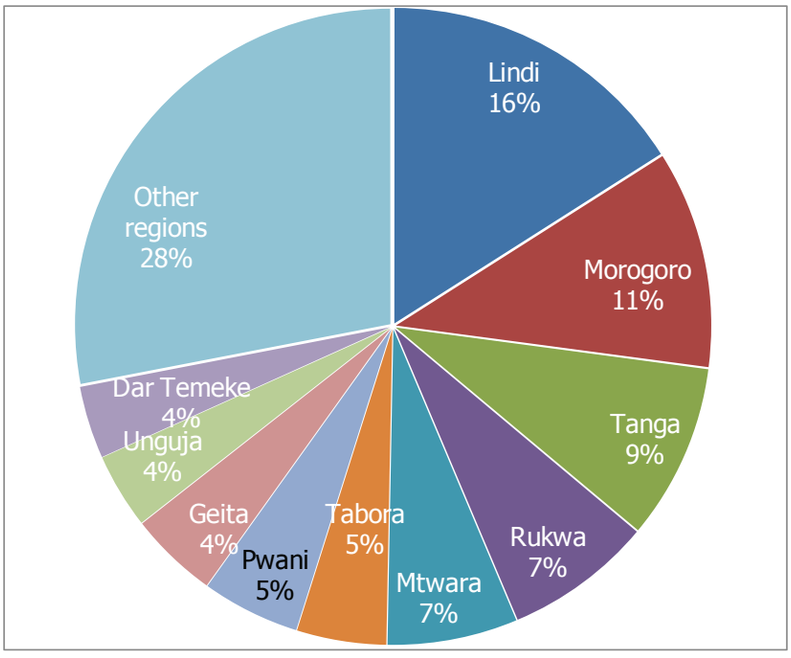
Region	New cases	Detection rate /100,000	MB	% of MB cases	Female	% of Female cases	Children	% of children cases	D.grade II	% of d.grade II
Dar Ilala I	53	3.7	48	91	15	28	2	4	5	9
Dar Ilala II	5		5	100	1	20	1	20	1	20
Dar Kinondoni	70	3.3	57	81	18	26	3	4	7	10
Dar Temeke	85	5.3	71	84	32	38	5	6	12	14
Dar es Salaam	**213**	4.1	**181**	**85**	**66**	**31**	**11**	**5**	**25**	**12**
Arusha	3	0.2	3	100	1	33	0	0	2	67
Dodoma	43	1.9	42	98	15	35	2	5	2	5
Geita	104	5.5	91	88	45	43	6	6	8	8
Iringa	9	0.9	9	100	5	56	1	11	2	22
Kagera	52	1.9	45	87	31	60	4	8	5	10
Katavi	36	5.8	35	97	18	50	4	11	10	28
Kigoma	63	2.8	53	84	20	32	1	2	5	8
Kilimanjaro	11	0.6	9	82	3	27	0	0	1	9
Lindi	367	41.3	242	66	199	54	13	4	27	7
Manyara	10	0.6	9	90	2	20	0	0	2	20
Mara	15	0.8	7	47	7	47	0	0	3	20
Mbeya	28	1.0	27	96	10	36	0	0	4	14
Morogoro	255	10.7	221	87	92	36	8	3	37	15
Mtwara	153	11.6	125	82	79	52	8	5	11	7
Mwanza	81	2.5	74	91	32	40	1	1	16	20
Njombe	7	1.0	7	100	5	71	0	0	0	0
Pwani	115	9.8	100	87	45	39	1	1	21	18
Rukwa	173	15.7	160	92	69	40	19	11	5	3
Ruvuma	76	5.2	58	76	30	39	3	4	3	4
Shinyanga	47	2.9	43	91	12	26	0	0	13	28
Simiyu	4	0.3	4	100	2	50	0	0	1	25
Singida	16	1.1	15	94	7	44	0	0	5	31
Tabora	105	4.2	98	93	36	34	1	1	35	33
Tanga	206	9.4	169	82	62	30	8	4	44	21
Mainland	**2,192**	**4.6**	**1,827**	**83**	**893**	**41**	**91**	**4**	**287**	**13**
Pemba	17	4.1	15	88	1	6	0	0	1	6
Unguja	88	9.1	60	68	17	19	7	8	12	14
Zanzibar	**105**	**7.6**	**75**	**71**	**18**	**17**	**7**	**7**	**13**	12
Tanzania	**2,297**	**4.7**	**1,902**	**83**	**911**	**40**	**98**	**4**	**300**	**13**

Figure 12: Trends of new leprosy cases reported: 2006 – 2015



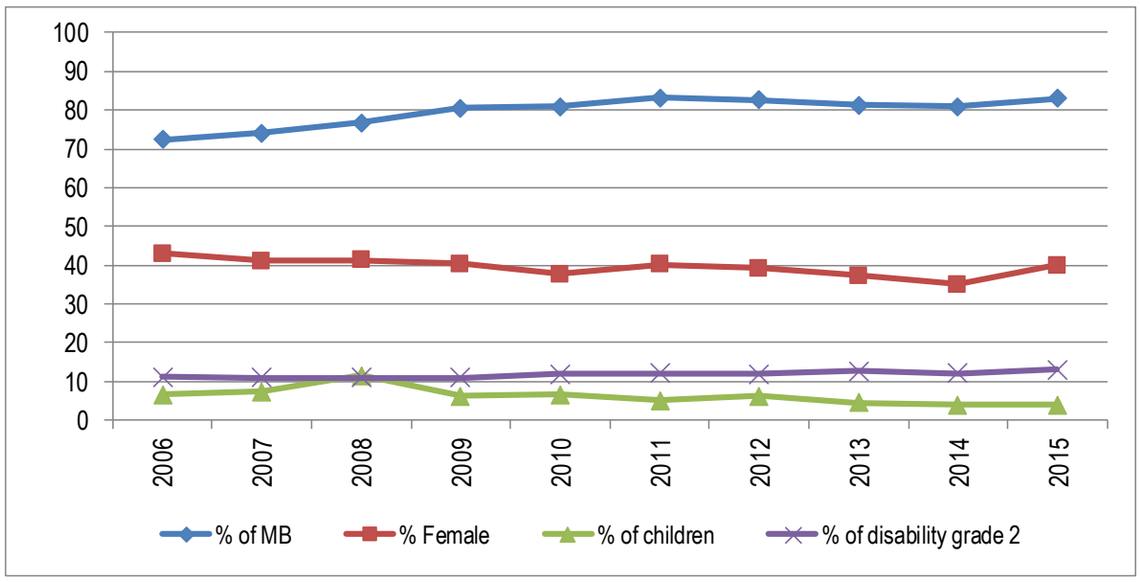
A figure 13 below summarizes the contribution of new leprosy cases by different regions. It shows that 72% of cases detected in 2015 comes were from only 10 regions.

Figure 13: The contribution of regions of new cases detected in 2015



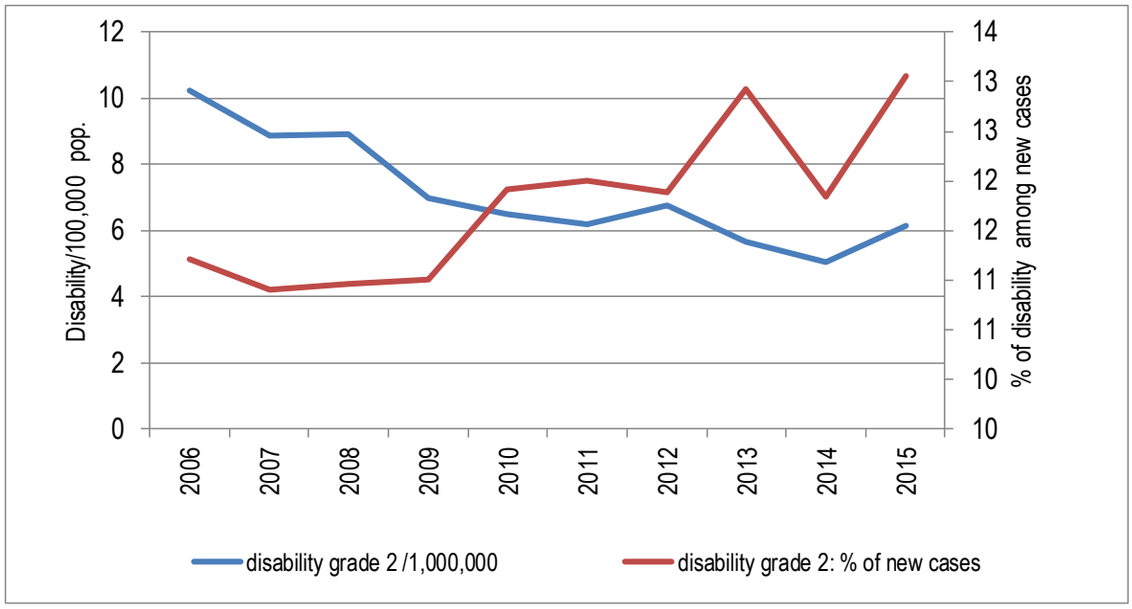
Since 1,990, the proportion of new MB cases detected annually has been slowly increasing from 68% to over 80% while the proportion of females and children detected has been declining slowly from 44% down to below 40% and 10% to 4.60% respectively. The changes in proportion of MB cases and children notified annually suggest reduction in the prevalence of the disease in the country with reduced disease transmission. Moreover, the data also suggest that females could be utilizing less the available leprosy services compared to their male partners. This is summarized in the figures 14 and 15.

Figure 14: Trends of MB cases, children and females among new leprosy cases: 2006 -2015



During this reporting period, the proportion of disability grade 2 among new detected cases has remained higher at 13%, however, there has been a gradual decrease in rates due to change and growth of population as shown in figure 15 below.

Figure 15: Trend of disability grade 2, percentage among new cases and rates per 1,000,000 populations



4.1.2 Registered prevalence

Overall, the prevalence of leprosy has showed a steady decline since 2002. The registered leprosy prevalence rate for years 2015 was 0.4/10,000 population as it was last year 2014. The prevalence detection ratio has remained around and below 1 since 2004 suggesting that patients are timely removed from the registers after completing their MDT treatment. The 2015 data, also shows that three regions of Lindi (3.5), Rukwa (2.2) and Mtwara (1.1) haves not reached a leprosy elimination target of less than 1/10,000 prevalence rate at regional level.

There are still 18 endemic districts from 10 different regions with prevalence rates higher than 1/10,000, as shown in table 7 below. These data show that the regions of Lindi and Morogoro Tanga had most of their districts still endemic and remain at high risk of increased disease burden.

Figure 16: Trends of new leprosy cases detected and registered: 2006 – 2015

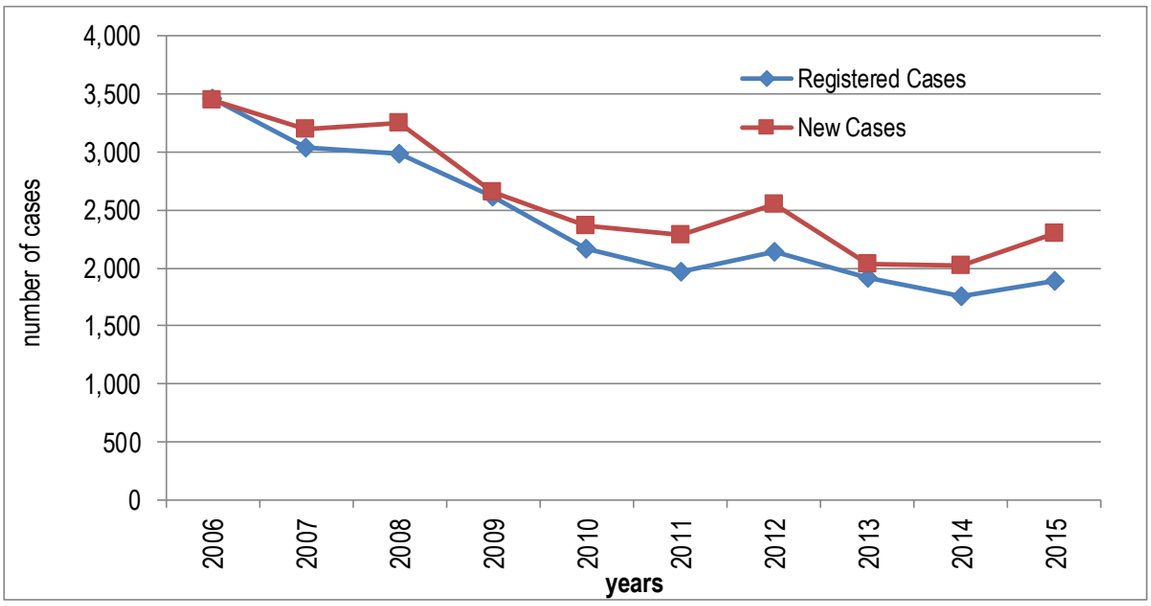


Table 10: Endemic districts with prevalence or detection rate greater than 1/10,000 Population in 2015

S/N	District	Region	Population	registered cases	prevalence rate
1	Liwale DC	Lindi	93,870	102	10.9
2	Lindi MC	Lindi	80,989	59	7.3
3	Nkasi DC	Rukwa	309,068	208	6.7
4	South & Central Unguja	Unguja	122,663	37	3.0
5	Nanyumbu DC	Mtwara	156,353	55	3.5
6	Rufiji DC	Pwani	231,932	41	1.8
7	Ruangwa DC	Lindi	134,651	21	1.6
8	Masasi TC	Mtwara	106,438	17	1.6
9	Chato DC	Geita	401,313	47	1.2
10	Lindi DC	Lindi	199,432	24	1.2
11	Namtumbo DC	Ruvuma	214,611	21	1.0

4.2 Leprosy treatment outcome

4.2.1 Treatment outcome of PB leprosy

The treatment outcome of PB leprosy cases who started treatment in 2013 2014 shows that, 368 355 (9589%) completed treatment while 8 22 (2.16%) were transferred out, 11 cases (3%) died while receiving treatment and only 2 defaulted from treatment. and there was no death reported. Table 8 below summarizes treatment outcome of PB leprosy cases notified in 2014.

Table 11: Treatment outcome of PB leprosy reported in 2014

Treatment outcomes	New cases		Relapse after MDT		Relapse after DDS/ Others		Total	
	number	%	number	%	number	%	number	%
Treatment Completed	351	90	3	50	1	100	355	89
Died	11	3	0	0	0	0	11	3
Out of Control	2	1	0	0	0	0	2	1
Transferred Out	19	5	3	50	0	0	22	6
Evaluated	383	98	6	100	1	100	390	98
Notified	390	100	6	100	1	100	397	100

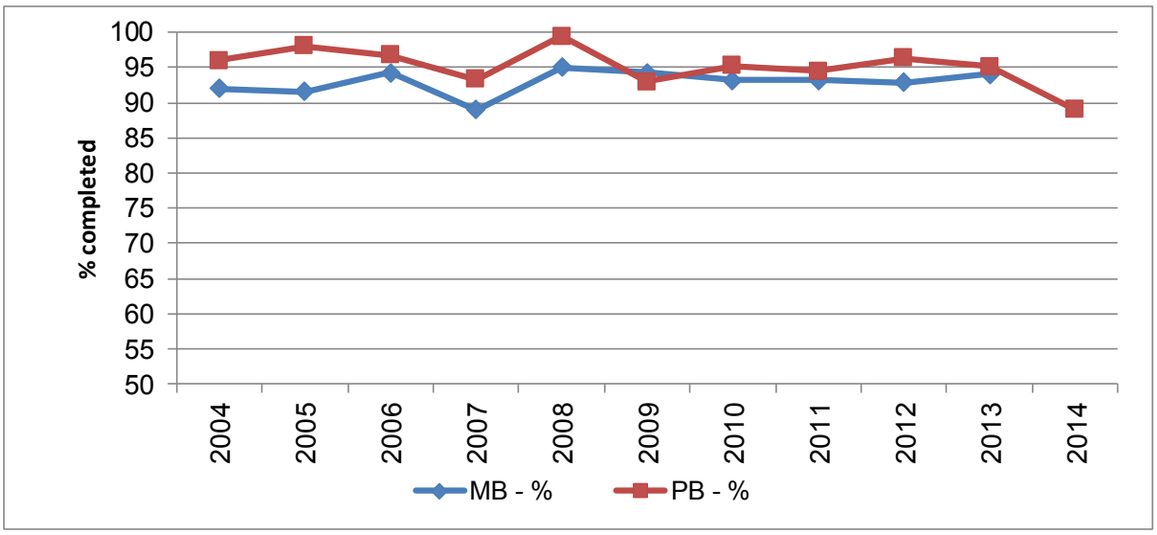
4.2.2 Treatment outcome of MB leprosy

Treatment outcome of MB leprosy cases notified in 2013 shows that, 1,612 (93%) completed treatment while 8 only one (0.4%) patients died during treatment period. However, the data also shows that 74 patients did not complete their treatment due to various reasons: 51 (3.0%) defaulted from treatment and 23 (1.0%) cases were transferred out during treatment. Table 9 below summarizes treatment results of MB cases notified in 2013.

Table 12: Treatment outcome of MB leprosy notified in 2013

Treatment outcomes	New cases		Relapse after MDT		Relapse after DDS/ Others		Total	
	number	%	number	%	number	%	number	%
Treatment Completed	1,562	94	29	88	21	75	1,612	94
Died	0	0	0	0	1	4	1	0
Out of Control	48	3	1	3	2	7	51	3
Transferred Out	22	1	1	3	0	0	23	1
Evaluated	1,632	99	31	94	26	93	1,689	98
Notified	1,654	100	33	100	28	100	1,715	100

Figure 17: Trends of leprosy cases completed treatment: 2004 – 2014



4.3 Activities related to acceleration of leprosy elimination efforts

Tanzania is among 17 countries in the world reporting high number of leprosy cases of more than 1,000 cases per year. It is also one of the signatories of the "Bangkok declaration to accelerate leprosy elimination among the high burden countries and those at high risk of increasing disease burden. During this reporting year, the programme in collaboration with and traditional partners like WHO, GLRA and Novartis Foundation continued to implement the following activities has:-

4.3.1 Leprosy Elimination Campaigns

With support from WHO, the programme conducted one leprosy elimination campaigns (LEC) at in two districts of Mkinga DC and Muheza DC in Tanga region. However, the screening exercise was conducted in only Mkinga district. In Muheza, the programme in collaboration with district council conducted intensive sensitization activities at selected villages and schools from wards with high leprosy prevalence. During the screening activities in Mkinga district, 64 new cases were detected and initiated on MDT. The campaign was one of the activities during the commemorations of world leprosy day in Tanga region. In one week, 22 new cases were actively found and initiated on MDT.

4.3.2 Leprosy Post Exposure Prophylaxis (LPEP)

The Leprosy Post-Exposure Prophylaxis Project (LPEP) has been designed to demonstrate the impact of PEP added to contact tracing activities as a strategy to interrupt transmission of leprosy. The LPEP study is being implemented by the national leprosy programs of several countries across Asia, Africa and Latin America and Tanzania is one of these countries for the Africa continent. The project in Tanzania was launched in August, 2015, with a duration of three years. The main objective is to determine the feasibility and impact in terms of incidence reduction of contact tracing, screening and single-dose rifampicin PEP over a three year period. In Tanzania, the LPEP project is implemented in 3 districts of Nanyumbu in Mtwara, Liwale in Lindi and Kilombero in Morogoro region. All household contacts of all new leprosy cases diagnosed in in 2014-2017 will be eligible for inclusion. The study is fully integrated into the national leprosy control program, and supported by the long-standing ILEP partner, namely the German Leprosy and TB Relief Association. Funding is provided by the Novartis Foundation. During the first five months of implementation, the project districts have noted high level of community acceptance, screening households of the registered index cases and detecting at least 18 new leprosy cases as shown in the table 8 below.

Table 13: The number of targeted index cases and contacts screened in the project districts during August – December, 2015

Index cases/ households	Targets	Reached	%age	
Kilombero	150	60	40%	
Liwale	202	148	73%	
Nanyumbu	63	55	87%	
Total	**415**	**263**	**67%**	
CONTACTS	**Targets**	**Reached**	**%age**	**Number of New Cases detected**
Kilombero	600	235	39%	3
Liwale	808	579	72%	7
Nanyumbu	252	212	84%	8
Total	**1660**	**1026**	**65%**	18

Started with preparatory activities to introduce leprosy post-exposure prophylaxis (LPEP) in Tanzania in three pilot districts of Kilombero, Liwale and Nanyumbu. Through this programme, family members of the index case will be screened to rule out leprosy disease and being given a single dose rifampicin to all eligible testing leprosy negative. The intervention will largely contribute to efforts to detect leprosy disease early and cut down the transmission chain.

4.3.3 Project to Implement Bangkok Declaration

Protocol to access funds to implement Bangkok declaration to promote early case detection and addressing challenges facing PALs with disabilities was revised to only accommodate innovative interventions summing up to US$ 161,450 for the next three years. The revised protocol was resubmitted in December, 2015 for review and will mainly focus on active case finding efforts, promoting increased community involvement and social mobilization. The project will be implemented in three 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 memorial initiative and are being managed by WHO leprosy global programme.

4.4 Activities related to prevention of disabilities (POD)

4.4.1 People with leprosy related disabilities

In 2015, a total of 1018 people affected by leprosy (PALs) with disabilities were registered. A total of 1,435 (82.1 %) were reviewed to assess their physical impairments and only 32 (1.8%) PALs had their condition deteriorated and 24% did not change on the course of their treatment.

4.4.2 Leprosy reactions

A total of 936 leprosy patients were reported with reactions and started on corticosteroid treatment. Out of them, adults MB cases were 89.9% (842) and for PB 94 (10%). Of all the reported cases, only 93 required hospital admission because of severe reactions. The table below shows patients reported with reactions by region per category. The availability of sufficient prednisolone drugs for PALs in need at health facilities in the country remain a big challenge. The district medical officers in all councils are reminded to include the requirement of prednisolone for PALs in their routine health facility drug need estimates and orders.

Table 14: Leprosy cases started treatment with corticosteroid in 2015

Region	MB (A)	MB (C)	PB (A)	PB (C)	Total
Dar Ilala I	16	2	2	2	22
Dar Ilala II	6	0	0	0	6
Dar Kinondoni	44	0	1	0	45
Dar Temeke	16	0	1	0	17
Dar Es Salaam	**82**	**2**	**4**	**2**	**90**
Dodoma	9	1	0	2	12
Geita	21	1	0	0	22
Iringa	4	1	0	0	5
Kagera	6	0	0	0	6
Katavi	17	0	1	0	18
Kigoma	13	0	1	0	14
Kilimanjaro	10	0	0	0	10
Lindi	110	0	26	0	136
Manyara	2	0	1	0	3
Mara	10	0	18	0	28
Mbeya	1	0	0	0	1
Morogoro	66	0	11	1	78
Mtwara	31	0	1	0	32
Mwanza	31	0	1	0	32
Njombe	2	0	0	0	2
Pwani	38	0	5	0	43
Rukwa	202	3	2	1	208
Ruvuma	2	0	0	0	2
Shinyanga	19	0	3	0	22
Simiyu	2	0	0	0	2
Singida	10	0	1	0	11
Tabora	18	0	0	0	18
Tanga	74	1	1	8	84
Mainland	**780**	**9**	**76**	**14**	**879**
Pemba	6	1	0	0	7
Unguja	44	2	4	0	50
Zanzibar	**50**	**3**	**4**	**0**	**57**
Tanzania	**830**	**12**	**80**	**14**	**936**

2.4.3 Specialized care of people with disabilities

During the year 2015, a total of 251 persons affected by leprosy (PALs) were admitted requiring some specialized care at different consultant hospitals in the country. Ulcers and wounds ranked high as the main reason for admission by 94 (37.4.1%) followed by reactions 93 (37%). Eye pathology ranked third and accounted for 25 (9.9%), and the least was constructive surgery 13(5.1%). Eye pathology which was 10 (5.6 %). In addition to these, 33 PALs were fitted with prostheses.

The table 15 below summaries the number of surgeries done, prosthesis fitted and prostheses repaired for people affected by leprosy in 2015 by regions.

Table 15: Number of leprosy admissions in hospitals 2015

Number of leprosy admissions in hospital(s)		
Indications for admission	Ulcers/wound treatment	94
	Reactions	93
	(Reconstruction) Surgery	13
	eye pathology	25
	Others	26
Number of Amputation done		2
Number of referred for rehabilitation outside the regions		4
Number of PALs given Prosthesis		33

4.4.4 Footwear Programme

In 2015, a total of 3250 pairs of special boots were produced centrally and distributed to regions country wide. By the end of the year 2000 pairs of protective sandals were distributed to people affected by leprosy. This is only 65% of the protective sandals reaching PALs in need. To complement these efforts, 161 pairs of shoes were made locally in several regions by the local shoemakers. In the case of special boots,79 pairs were fabricated and 311 footwear repairs were done for PALs with foot deformities. The table below shows the amount of footwear distributed to people affected by leprosy by region in 2015. This includes factory made sandals, locally produced shoes, special boots and repairs done.

Table 16:Disribution of footwear in 2016

S/N	REGIONS	Protective footwear distributed to region	Protective footwear distributed to PALs per region	Protective footwear on site produced	Special boots	Prostheses provided	Protective footwear repair
1	Ilala I	12	23	4	0	0	0
2	Ilala II	20	0	0	0	0	0
3	Temeke	60	33	0	0	0	0
4	Kinondoni	60	10	0	0	0	0
5	Arusha	5	0	0	0	0	0
6	Dodoma	95	209	0	0	0	0
7	Iringa	40	26	0	20	0	0
8	Kigoma	75	24	4	0	6	0
9	Kilimanjaro	5	13	0	0	0	0
10	Kagera	56	35	0	0	0	0
11	Lindi	150	191	16	0	0	0
12	Mara	100	39	13	0	16	13
13	Mbeya	40	25	0	0	0	0
14	Morogoro	300	169	0	5	0	48
15	Mtwara	150	202	55	0	0	0
16	Pwani	240	226	0	54	0	41
17	Rukwa	109	42	0	0	0	0
18	Ruvuma	201	74	0	0	0	0
19	Shinyanga	310	15	0	0	0	12
20	Singida	145	155	0	0	0	33

21	Tabora	290	239	30	3	7	73
22	Tanga	139	104	0	0	0	0
23	Manyara	0	2	0	0	0	0
24	Mwanza	320	144	39	0	0	91
25	Zanzibar	150					
	TOTAL	3,072	2,000	161	79	33	311

Table 17: Materials distributed for fabrication of special and local shoes production per region in 2015

Regions	Leather	MCR	H.rubber	GLUE	L.Leather	Thread	S.Riverts
Kigoma	30	1	1	2	0	3	100
Morogoro Chazi	30	1	1	2	10	3	200
Morogoro Nazareth	30	2	2	4	30	3	300
Tanga Misufini	20	1	1	3	0	2	100
Mara Shirati	30	1	1	3	0	3	200
Shinyanga Busanda	30	1	1	3	10	3	100
Kagera Biharamuro	30	1	1	2	10	3	200
Pwani Kindwitwi	40	2	2	4	30	3	200
Tabora Sikonge	40	2	2	4	20	3	200
Mwanza Bukumbi	40	2	2	3	20	3	200
Ruvuma	30	2	1	2	20	3	200

5.0 LABORATORY SERVICES

The Central Tuberculosis Reference Laboratory is the Program's unit which implements and supervise all diagnostic activities. It oversee AFB smear microscopy, Xpert MTB/RIF and TB culture services throughout the country. Other core functions include operation of the routine surveillance system (RSS) on use of drug susceptibility tests (DST) for guiding and monitoring patient's treatment. In addition, it has overall responsibility of setting up national standards and overseeing the Implementation of policies.

During 2015, the main activities included the Decentralization of culture services in the Zonal Laboratories where by three Culture laboratories were started including hiring of the key staff for the procedure. Also the Program launched its GeneXpert MTB/RIF roll out plan which aims at guiding the stakeholders in the scaling up of the GeneXpert MTB/RIF technology in the country.

5.1 Collaboration with Partners

The CTRL in the period of 2015 has continued to collaborate with different partners such as the Royal Netherlands TB Association (KNCV) through Challenge TB project, Royal Netherland Association (NRA) Centers for Disease Control (CDC), EAPHLN through World Bank. In addition, the CTRL received technical support and TB laboratory supplies and commodities from partners such as; FIND through expand TB project,

5.2 Laboratory Workload

In 2015, 4,032 specimens were received at the CTRL, out of these 247 (6.12%) were for studies/projects and 3,785 (93.87%) were from different parts of the country for AFB smear microscopy, culture and DST examinations.

Of these 3,785 specimens 1,531 (40.44%) were from Muhimbili National Hospital (MNH) for TB diagnostic tests only and 2,011 (53.13%) were set for culture and DST as part of MDR-TB routine surveillance system. However, culture was done on 2015 for sputum specimens of which 1,422 (37.57%) were culture negative while 526 (13.90%) were positive isolates and some of these positive isolates (Retreatment cases) were set for DST. DST results were available for 601 (29.88%) isolates.

Of these, 522 (88.02%) of all isolates with DST results were sensitive to all four first line anti-TB drugs, 79 (2.1%) of the positive isolates had resistance to one or more anti-TB drugs and 42 Isolates were Multi Drugs Resistance (MDR)

Table 18 : Number of specimens received from Regions in 2015

Region	New	Retreatment	Total
Arusha	152	19	171
Dodoma	3	11	14
Ilala I	25	67	92
Ilala II	1	14	15
Iringa	21	39	60
Kagera	51	36	87
Kigoma	27	23	50
Kilimanjaro	97	197	294
Kinondoni	40	179	219
Lindi	6	15	21
Manyara	7	5	12
Mara	13	11	24
Mbeya	0	1	1
Morogoro	10	27	37
Mtwara	5	7	12
Mwanza	68	36	104
Pwani	0	19	19
Rukwa	0	1	1
Ruvuma	11	3	14
Shinyanga	10	14	24
Singida	7	12	19
Tabora	1	1	2
Tanga	44	38	82
Temeke	30	156	186
Total	629	931	1,560

Table 19: Total number of specimens received at the CTRL

Scheme	N	%
MNH	1,531	37.97
All other regions	2,246	55.70
Research	255	6.32
Total	4,032	100

5.3 Genexpert MTB/Rif Implementation in Tanzania – Rapid DST

The Xpert MTB/RIF assay, which operates on the GeneXpert (GX) system (Cepheid, CA, USA) is now become common technology in Tanzania. The assay endorsed by the World Health Organization (WHO) in 2010 for use in low and middle income countries for the diagnosis of TB and detection of rifampicin resistance (WHO news release; December 2010). Adoption of XpertMTB/RIF assay in Tanzania as a diagnostic tool for the identification of Tuberculosis using the MTB-RIF cartridges improves notification of presumptive TB and MDR cases especially to diagnose groups such as people living with HIV and in children.

Under FIND support (with funding by CDC Tanzania under its CDC Cooperative Agreement) together with CTRL control and regulate the implementation of Xpert MTB/RIF to the sites and managed to develop and introduces the standardize country specific documents for implementation using a standardized checklists for pre installation, installation, trouble shooting and supervision as well as to centralize reagents distribution. Moreover CTRL developed and implemented Xpert MTB/RIF Master file to compile all GeneXpert laboratory data for Xpert MTB/RIF which is under control of appointed GeneXpert focal person.

In cementing the standardized implementation of XpertMTB/RIF assay in the country, CTRL under FIND support developed and launched the *Xpert ® MTB/RIF test Rollout and Implementation Plan* in 2015 and calibrated all NTLP supported GeneXpert instruments as per schedule in 2014/2015

In 2015 total, 67 health facilities installed with GeneXpert machines in all regions for Tanzania Mainland and in Unguja for Zanzibar with the country average utilization of 67%. The total number of specimen processed in the country increased to 9499 in 2015 from 5625 for year 2014.To ensure the thorough monitoring of GeneXpert operations in all sites CTRL under FIND support introduced remote monitoring system known as GX Alert. By the end of 2015 total 42 sites out of 67 installed with GX Alert modems which helps to share patient's results instantly from machine to clinicians and TB coordinators by either text massage through phones or email within entire TB programme with respect of facility, district, region and National level.

To increase Quality performance of diagnosis with GeneXpert CTRL conducted basic user training for 56 Laboratory personnel from 16 regions followed by Super Users training of 10 Laboratory personnel from seven regions. The role of basic user is to perform basic sample operations and equipment maintained whereby the super users have capability of conduct advance maintained and troubleshooting to the machine including module exchange.

5.3.1 Summary analysis of the Xpert MTB RIF in 2015

During the January to December 2015 a total of 58,095 Xpert MTB/RIF tests were performed for all sites installed with GeneXpert machine in the country. These results were from 70 health facilities with GeneXpert machines. The analysis of the were as follows;

43,034 (74.1%) were MTB not Detected, 9,311 (16.0%) were MTB Detected Rifampicin resistance not detected, 388 (0.7%) were MTB Detected Rifampicin resistance detected, 473 (0.8%) were MTB Detected Rifampicin resistance Detected, 1,993 (3.8%) were Errors, 1,993 (3.4%) were invalid and 581 (1%) had no results.

Table 20: Summary of Xpert results in 2015

Values	Grand Total
Total # Xpert tests	58,095
Total # Xpert MTB-	43,034
Total # MTB+ RIF indeterminate	473
Total # MTB+ RIF sens	9,311
Total # MTB+ RIF res	388
Total # error results	1,993
Invalid	1,743
No Results	581
Average Error rate	4%
Average Rate of Rif resistance	4%
Average Rate of Xpert MTB positivity	17%
Average Instrument capacity being utilized	33%

6.0 PROGRAMME SUPPORT ACTIVITIES

6.1 Procurement and Supply Management of Anti-TB and Anti-Leprosy Medicines

Procurement of anti-TB and anti-leprosy medicines and commodities is done by the Government through the development partners such as; the World Health Organization (WHO), the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). First line and second line for adults and children anti-TB medicines are procured by Global Fund grant through Global Drug Facility (GDF). On the other hand, the GF through Medical Stores Department (MSD) supports procurement of ancillary medicines and laboratory reagents, equipment and supplies. Ancillary medicines are used for the management of side effects in patients taking anti-TB second line medicines. Furthermore, the GF through GDF procures single therapy Isoniazid tables for INH prophylaxis among PLHIV. Leprosy medicines are procured through the World Health Organization (WHO).

6.1.1 Stock status: National, and districts

The Program is responsible for forecasting and quantification of anti-TB and anti-leprosy medicines and laboratory reagents. MSD, which is an autonomous institution of the Ministry of Health and Social Welfare is responsible for the procurement (ancillary medicines and laboratory reagents), port clearing, storage and distribution of pharmaceuticals and medical supplies. Monitoring commodity availability at point of service delivery remains to be core function of NTLP as well as overseeing overall resource mobilization for anti-TB and anti-leprosy medicines.

NTLP has finalized roll out of The New Optimized TB and Leprosy Logistic System to all the regions including Zanzibar and Pemba. Using this system, facilities with TB and Leprosy patients are now required to fill in Facility Monthly Report Form (FMRF) every month indicating the number of patients in their facility, month of treatment and stock of medicines available at the facility in that respective month. This form is submitted to the district for them to be supplied with the required medicines. Each district compiles information from all the facilities and prepares quarterly order (District Quarterly R & R Forms) which is submitted to MSD for them to be supplied with medicines for specific quarter. Through thus optimized system, distribution of medicines solely depend on the demand of facilities. Medicines from MSD Central is transported to MSD Zones and Zones supplies all respective districts according to their order.

The new logistic system does not cover distribution of Laboratory Commodities and MDR TB medicines, these commodities continue using the old system where MDR-TB medicines are sent directly to Kibong'oto and Laboratory commodities are sent to the Regions through RTLC. NTLP is responsible for monitoring and supervision of anti- TB and leprosy drugs at all levels.

One of the challenges facing drug management in most facilities is improper filling of FMRP where data filled in the form are inaccurate. Most districts still supplies medicines to facilities without following the stipulated Tb and Leprosy Logistic SOP. In addition During roll-out, some health facilities were not trained since they did not have TB patients..

During this period,(2015) the programme received through the MSD, consignments of Fixed Dose Combinations (FDCs) of anti TB drugs from the Global Drug Facility (GDF) and anti-leprosy blisters; MB Adult, MB child, PB adult and PB child from the WHO. The table below summarizes the

Table 21: Stocks of anti-TB and anti-leprosy drugs distributed in the country in 2015.

Item name	Unit Of Measure	Total quantity
RHZE 150/75/400/275mg	P/672	17,930
RH 150/75mg	P/672	33,467
RHE 150/75/275mg	P/672	2,045
STREPTOMYCIN 1G	Vial	273,000
WATER FOR INJECTION 1AMP.	Vial	310,400
SYRINGE PC	Each	110,444
RHZ 60/30/100mg	P/84	14,690
RH 60/30mg	P/84	7,038
ETHAMBUTOL 100mg	B/100	9499
MB (A)	Blister	14,400
PB (A)	Blister	864
MB (C)	Blister	576
Bedaquiline	P/188	5
Km Inj 1G	Vials	5556
Levofloxacin 250	P/100	2726
Levofloxacin 500	P/100	602
Clofazimine Cp 100mg	T/500	42
Isoniazid 300mg	T/672	4703
Isoniazid 100mg	B/100	2,850

The program is working to strengthen the supply chain system of TB and leprosy medicines to ensure that there is uninterrupted supply of these commodities in health facilities. Supervision and mentorship following the roll-out and training is conducted to sustain and mentor HCW's.

6.2 Community based activities

During this reporting year the community based activities continued to be implemented through regional and council's plans with the supervision from the central unit. The home based care DOT continued to be the most favorable choice of approach of receiving treatment for the majority of patients where by 86% of the patients were under this management in 2015. The contribution of the community referrals to the overall number of TB notified cases was at 15% which shows a decline from that of 2015 (19%). The trend of performance has been erratic for the past four years and this is because of availability of resources for the community based activities in majority of the regions and councils.

Table 22: Trend of community contribution (%) in TB case notification from 2012-2015

S/N	Year	Community contribution in TB case notification
1	2012	14%
2	2013	15%
3	2014	19%
4	2015	15%

Other factors contributing to this performance include distant TB diagnostic centers, stigma associated with TB and poor council community bases plans. These challenges will be addressed by strengthening involvement of Civil Society Organizations (CSOs) and empowerment of community for TB control at community level.

6.3 Advocacy, Communication and Social Mobilization (ACSM)

During the year under review World Tuberculosis Day was marked on the 24th March 2015. As part of the commemoration regions and districts were urged to mark the day by conducting different activities such as sensitization campaigns and active case finding by screening of people for TB. Other activities which were conducted were road shows; health education; and distribution of IEC materials. At the National level various television and radio stations were used to support in advocating TB messages including the slogan "Ibua. Tibu. Ponya kila mgonjwa wa TB which is a Swahili translation of theme of the World TB Day 2015 "Find. Treat. Cure Everyone." Interviews on TB, TB/HIV and MDR-TB were done in both print and electronic media (ITV, Radio UN, Uhai Productions-AZAM TV, Nipashe and the Gurdian newspaper).

Prior to the climax the Permanent Secretary for the Ministry of Health and Social Welfare Dr. Donan Mmbando held a press conference on behalf of the Minister Hon. Dr. Suleiman Rashid. In his statement he emphasized the importance of involvement of everyone in the fight against tuberculosis in the country. He said, winning the battle is possible if everyone will fulfill his/her role and take part in sensitizing, finding and advising those with TB symptoms to go to the health facilities for diagnosis and treatment.

The event was covered by both print and electronic media. Among them were: ITV, Channel Ten, Star TV, Wapo Radio, Radio Tumaini, TBC Taifa, Clouds FM, and Radio One Stereo. On print media the event was covered by the Nipashe, habari Leo, Mwananchi, and The Guardian. The event was also given priority in some of our famous social media such as Jamboleo , Michuzi, Haki Ngowi and Jiachie Blogs.

6.4 Logistic Support

The NTLP receive logistics support for transport from various sources such as GLRA, CDC/PEPFAR and GFATM. This support varies from Motorcycles, motor vehicles. In This year the Programme procured 4 new Motor vehicles for new Regions: Njombe, Geita, Katavi and Simiyu. Also procured were the 48 motorcycles for new and other districts. Special ambulance for MDRTB patient was also procured and handled over to Kibong'oto hospital

6.6 Public and Private Partnership (PPP)

The contribution of private health facilities in TB case detection has been remarkable in 2015 increasing from 6% in 2014 to 12% among 62200 total TB notifications, this has been largely contributed by good collaboration between private health facilities and local government authorities.

The NTLP has continued to provide support to the implementation of TB services in private health facilities in terms of provision of free drugs and other commodities (lab. Reagents and supplies) and recording and reporting tools. Also there have been trainings, supervisions and sensitization activities conducted jointly

In spite of these successes, there are still some hiccups that hinder implementation of TB care and prevention services from private sector; among others include

1. Lack of financial support to facilitate implementation of TB care and prevention services in private health facilities
2. Low involvement of the private sector in TB control services only 15% of the available private facilities provide TB services; majority are urban concentrated
3. Inadequate human and infrastructure resources to accommodate TB care and prevention services

In 2016 in line with NSP, NTLP intends to increase coverage of TB services to the private sectors in collaboration with key stakeholders on ground such as APHFTA and CSSC

6.6 TB in Mining sector

TB in the mining sector (TIMS) initiatives are now on full phase of implementation, Tanzania being among signatories of SADC declaration for TB control in the mining sector, expects to implement SADC regional grant. The grant that aimed at reducing the burden of in the mining key population will be effective from January 2016.

In 2015 The MoHCDGEC through NTLP in collaboration with International Organization for Migration (IOM) has implemented several interventions targeting key population in mining in line with NSP Objective 5. Among these interventions include:

1. Engaging mining companies in mobilizing resources for TIMS, Acacia gold mining, Anglo-Ashanti-Geita Gold Mining (GGM) pledged their commitment in raising community awareness
2. Conduct rapid surveys in North Mara – Tarime and Geita to assess the current practices related to mining exploration and diseases vulnerabilities among key populations in these areas
3. Sensitize mining communities in Kahama, Geita and Mererani on TB, HIV/AIDS and occupational hazards

Apart from these achievement TB in the mining sectors program is facing some challenges which include: Inadequate financial support for TIMS interventions, Limited health care services, low involvement of private mining outfits and low awareness among key population in mining areas.

6.7 Supportive Supervision

The NTLP supportive supervision is cascaded in three levels that are: central unit supervise regions at least once per year; regions supervise districts once in every quarter; and district supervise diagnostic centres every month and DOT centres each quarter. The Ministry conducted supportive supervision to only 12 regions namely: Shinyanga; Mbeya; Iringa; Morogoro; Mtwara; Tanga; Ruvuma; Lindi; Singida; Simiyu; Temeke and Njombe region. The supervision was not complete as planned due to shortage of fund support due to several reasons such as reduced support from Development partners and also delayed implementations by partners

Findings and recommendations are summarized in the below table.

Table 23: Supportive Supervision findings and Recommendations 2015

Strength	Gaps	Recommendation
– Generally TB, TB/HIV collaborative and MDRTB and leprosy servicers are well implemented. – SOPs, Algorithm and manuals are in place – Most of the Service providers; Clinicians and DOT nurses has Good knowledge on the management of the patients and filling of the reporting tools – The new TBL medicines management system has started been implemented	– A need for the supportive supervision report to be reviewed to be simple – Supervision reports to lower levels are not recorded and documented – The EQA is not performed to standard and there is no EQA plans in most of region visited. – Healthcare providers are not yet trained on the management of MDR TB. – Community based activities has been partially implemented or stopped due to lack of financial support after the close out of PATH. – The new TB and leprosy medicines management system need to be strengthened as it is not working as expected.	– The TLCU should review/develop and share the format/template on supervision report. – A file at each facility have been initiated for documentation at lower level – EQA coordination to be strengthened – the Ministry should conduct orientation on the revised recording and reporting tools to healthcare providers – The RTLCs and DTLCs should continue providing mentorship to healthcare providers on data recording and reporting. – The Ministry have to conduct MDR TB management training to healthcare providers – TLCU should collaborate with partners such as EGPAF to train more sputum fixers. – Mentorship on how to fill the monthly forms and other recording and reporting tools.

6.8 Data Quality Assessment (DQA)

In order to ensure quality of data collected routinely the programme started conducting data quality assessment exercise in districts and health facilities in 2014. TB case notification was the indicator considered mostly in the exercise, in 2015 the Programme updated RDQA tools to include other indicators on TB treatment outcome, leprosy notification and treatment outcomes and on D/MDR TB. The tools were updated and tested in Temeke district and then were conducted in other four regions: Mbeya, Tanga, Mtwara, Singida.

The indicators verified were TB case notification; TB HIV testing and counselling; MDR TB notification; leprosy notification and treatment outcomes of TB and leprosy cases. The key common findings observed in the visited districts and health facilities include;

Strength

- The assessed reports in Mbeya and Mtwara regions, showed a less than 2% variation between the reported values and re-calculated or re-counted values.
- Good systems for the data management : focal persons for data management who are trained and have working tools
- Regional Quarterly review meetings are conducted in about 64% of the regions.

Weakness

- Understanding of new TB case definition among healthcare workers was very low, especially on groups of previously treated TB cases (relapse and other previously TB cases) resulting in misclassification.
- Using old registers and cards instead of newly updated and distributed register for some regions
- MDR TB suspect or the MDR TB district registers were not used in all districts visited
- Routine data quality activities at lower level are not performed

Recommendations

- Both regional and district coordinators should closely monitor data collection and compilation at TB/NDT clinics on regular basis to ensure quality data especially in the areas of
- The districts should clearly define job descriptions and the corresponding limitation between DTLC/TBHO and DOT nurses to ensure quality care of patients and data
- The NTLP data management guideline is needed
- The Regional quarterly meetings should a be core Program activity across all regions

ANNEX 1: TUBERCULOSIS CASES (ALL FORMS) NOTIFICATION BY REGION: 2015

REGION	Bacteriologicaly confirmed	Clinically diagnosed	New extrapulmonary	Relapses	Failure	Return after lost for follow up	Others	Total
Dar Ilala I	1,511	1,179	434	73	14	9	41	3,261
Dar Ilala II	318	327	491	23	1	4	24	1,188
Dar Kinondoni	2,231	1,495	584	72	18	27	67	4,494
Dar Temeke	1,975	2,016	604	50	4	14	84	4,747
Dar es Salaam	**6,035**	**5,017**	**2,113**	**218**	**37**	**54**	**216**	**13,690**
Arusha	927	1,393	676	57	4	18	53	3,128
Dodoma	682	728	504	46	0	3	17	1,980
Geita	917	838	220	36	2	8	30	2,051
Iringa	668	555	520	25	2	3	17	1,790
Kagera	855	772	159	61	3	17	80	1,947
Katavi	188	42	57	3	0	0	1	291
Kigoma	328	359	216	10	4	14	34	965
Kilimanjaro	906	883	303	84	10	15	38	2,239
Lindi	562	418	233	25	1	19	14	1,272
Manyara	936	766	672	66	0	5	43	2,488
Mara	740	642	833	49	4	5	78	2,351
Mbeya	1,099	1,575	936	50	4	8	34	3,706
Morogoro	1,165	1,503	476	46	1	1	24	3,216
Mtwara	901	436	341	50	1	3	34	1,766
Mwanza	1,439	1,304	923	42	5	11	21	3,745
Njombe	317	497	252	5	0	1	2	1,074
Pwani	969	618	409	31	2	8	21	2,058
Rukwa	308	63	86	16	1	5	10	489
Ruvuma	372	390	620	17	1	4	30	1,434
Shinyanga	1,002	533	425	36	7	10	31	2,044
Simiyu	692	404	383	32	1	6	36	1,554
Singida	456	586	258	38	1	5	15	1,359
Tabora	486	1,153	369	31	2	6	15	2,062
Tanga	861	1,162	500	56	2	9	38	2,628
Mainland	**23,811**	**22,637**	**12,484**	**1,130**	**95**	**238**	**932**	**61,327**
Pemba	197	55	89	4	1	1	1	348
Unguja	282	85	106	15	3	5	9	505
Zanzibar	**479**	**140**	**195**	**19**	**4**	**6**	**10**	**853**
Tanzania	**24,290**	**22,777**	**12,679**	**1,149**	**99**	**244**	**942**	**62,180**

Annex 2: Age and sex distribution of all forms of TB cases (new and relapse) notified in 2015

Region	0 - 4		5 - 9		10 - 14		15 - 24		25 - 34		35 - 44		45 - 54		55 - 64		65+		Total		Total
	Fem	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	**Fem**	**Mal**	
Dar Ilala I																					
Dar Ilala II																					
Dar Kinondoni																					
Dar Temeke																					
Dar es Salaam	**235**	**243**	**94**	**143**	**160**	**147**	**774**	**1,172**	**1,380**	**1,982**	**1,344**	**2,048**	**625**	**1,301**	**353**	**628**	**251**	**501**	**5,216**	**8,165**	**13,381**
Arusha	122	159	38	52	38	60	153	164	238	348	254	437	173	287	105	139	111	175	1,232	1,821	3,053
Dodoma	50	49	29	33	26	29	67	119	145	197	150	252	106	246	62	137	68	195	703	1,257	1,960
Geita	36	21	19	16	14	24	76	93	158	202	177	331	90	286	40	189	50	195	660	1,357	2,017
Iringa	45	48	14	21	22	29	64	76	201	246	197	278	89	159	50	88	61	80	743	1,025	1,768
Kagera	24	21	12	20	14	16	73	72	144	238	136	328	109	228	65	163	56	116	633	1,202	1,835
Katavi	7	8	5	0	3	5	25	18	32	34	23	39	10	38	9	10	5	19	119	171	290
Kigoma	24	34	17	17	12	17	56	60	81	71	62	108	55	98	43	64	38	56	388	525	913
Kilimanjaro	65	57	30	21	18	24	83	120	140	311	151	426	80	272	64	130	48	136	679	1,497	2,176
Lindi	15	20	20	18	16	9	51	66	92	130	115	201	69	143	43	90	56	84	477	761	1,238
Manyara	62	68	44	56	33	43	90	129	189	257	204	290	103	239	89	156	159	229	973	1,467	2,440
Mara	14	20	26	33	46	32	115	83	229	195	218	266	206	212	116	145	129	179	1,099	1,165	2,264
Mbeya	106	105	55	56	54	47	193	202	389	524	335	551	186	341	97	194	93	168	1,508	2,188	3,696
Morogoro	45	64	28	56	43	41	182	198	303	325	311	477	187	377	109	193	87	199	1,295	1,930	3,225
Mtwara	19	25	14	18	19	21	73	85	108	195	146	316	96	238	68	135	68	121	611	1,154	1,765
Mwanza	113	170	56	55	57	57	193	206	352	407	322	530	195	349	125	190	129	226	1,542	2,190	3,732
Njombe	14	16	17	22	18	17	47	40	131	145	95	150	62	91	40	49	31	41	455	571	1,026
Pwani	52	60	28	23	29	34	90	135	193	234	182	315	87	198	61	129	52	125	774	1,253	2,027
Rukwa	4	2	3	2	7	3	27	23	49	69	50	82	27	43	15	47	20	35	202	306	508
Ruvuma	27	23	21	23	27	26	54	55	119	130	118	211	92	149	67	108	61	86	586	811	1,397
Shinyanga	31	44	18	18	17	32	109	95	191	252	181	301	115	245	51	132	36	128	749	1,247	1,996
Simiyu	41	54	41	38	24	35	89	102	140	172	82	182	74	135	42	95	46	116	579	929	1,508
Singida	30	38	11	22	12	18	38	82	78	150	100	180	61	159	50	100	71	138	451	887	1,338
Tabora	53	58	23	23	32	24	68	67	148	184	199	290	109	245	57	156	62	235	751	1,282	2,033
Tanga	51	67	18	32	29	35	104	130	216	259	218	330	137	270	74	162	181	272	1,028	1,557	2,585
Mainland	**1,285**	**1,474**	**681**	**818**	**770**	**825**	**2,894**	**3,592**	**5,446**	**7,257**	**5,370**	**8,919**	**3,143**	**6,349**	**1,895**	**3,629**	**1,969**	**3,855**	**23,453**	**36,718**	**60,171**
Pemba	7	8	4	5	4	5	17	21	31	42	31	51	18	36	11	21	11	22	134	211	345
Unguja	10	12	6	7	6	7	23	29	44	59	44	72	25	51	15	29	16	31	190	298	488
Zanzibar	**17**	**20**	**10**	**12**	**10**	**12**	**40**	**50**	**75**	**101**	**75**	**123**	**43**	**87**	**26**	**50**	**27**	**53**	**324**	**509**	**833**
Tanzania	**1,302**	**1,494**	**691**	**830**	**780**	**837**	**2,934**	**3,642**	**5,521**	**7,358**	**5,445**	**9,042**	**3,186**	**6,436**	**1,921**	**3,679**	**1,996**	**3,908**	**23,777**	**37,227**	**61,004**

Annex 3: Treatment results of new and relapse TB cases notified in 2014

Region	Cases notified, 2014	Cases Cured	Cases Completed treatment	Cases Failed	Cases Died	Cases Lost to Follow up	Cases Note Evaluated
Dar Ilala I	3,114	1,296	1,466	13	176	76	87
Dar Ilala II	1,051	280	654	0	63	6	48
Dar Kinondoni	4,812	2,333	1,812	21	298	74	274
Dar Temeke	4,248	1,882	1,860	11	307	93	95
Dar es Salaam	**13,225**	**5,791**	**5,792**	**45**	**844**	**249**	**504**
Arusha	2,881	824	1,699	1	184	39	134
Dodoma	2,122	626	1,421	0	55	1	19
Geita	1,997	721	1,141	1	66	21	47
Iringa	1,446	523	780	2	107	25	9
Kagera	1,647	686	765	6	94	77	19
Katavi	256	110	129	1	12	4	0
Kigoma	758	294	380	1	59	15	9
Kilimanjaro	2,357	1,027	1,075	3	119	72	61
Lindi	1,335	443	733	2	89	25	43
Manyara	2,468	707	1,545	9	102	19	86
Mara	2,433	657	1,547	0	85	33	111
Mbeya	3,861	989	2,492	4	277	49	50
Morogoro	3,419	1,122	1,964	3	189	19	122
Mtwara	1,778	732	884	1	47	13	101
Mwanza	4,342	1,211	2,592	3	318	84	134
Njombe	872	287	496	1	56	1	31
Pwani	1,942	823	967	1	101	23	27
Rukwa	500	258	186	0	34	5	17
Ruvuma	1,452	481	814	1	49	60	47
Shinyanga	2,963	1,136	1,448	1	127	70	181
Simiyu	1,300	390	743	0	86	71	10
Singida	1,308	460	716	1	67	9	55
Tabora	1,744	463	1,071	0	114	90	6
Tanga	2,539	639	1,760	5	112	18	5
Mainland	**60,945**	**21,400**	**33,140**	**92**	**3,393**	**1,092**	**1,828**
Pemba	176	79	93	1	1	0	2
Ugunja	452	220	187	3	19	5	18
Zanzibar	**628**	**299**	**280**	**4**	**20**	**5**	**20**
Tanzania	**61,573**	**21,699**	**33,420**	**96**	**3,413**	**1,097**	**1,848**

Annex 4: Treatment results of All Previously treated TB cases notified in 2014

Region	Cases notified, 2014	Cases Cured	Cases Completed treatment	Cases Failed	Cases Died	Cases Lost to Follow up	Cases Note Evaluated
Dar Ilala I	128	53	35	2	13	8	17
Dar Ilala II	40	17	18	0	5	0	0
Dar Kinondoni	256	78	57	5	14	10	92
Dar Temeke	205	47	79	3	17	4	55
Dar es Salaam	**629**	**238**	**197**	**14**	**56**	**27**	**164**
Arusha	130	52	54	0	10	5	9
Dodoma	63	20	35	0	2	0	6
Geita	83	29	44	0	2	1	7
Iringa	52	29	11	2	4	3	3
Kagera	133	70	56	0	6	1	0
Katavi	11	7	4	0	0	0	0
Kigoma	50	17	21	1	5	0	6
Kilimanjaro	152	61	65	5	8	5	8
Lindi	57	20	21	2	7	2	5
Manyara	93	33	50	0	3	3	4
Mara	130	38	65	2	15	7	3
Mbeya	113	28	64	5	14	2	0
Morogoro	70	26	28	1	6	2	7
Mtwara	130	52	76	0	2	0	0
Mwanza	77	35	30	1	4	6	1
Njombe	13	5	6	0	0	0	2
Pwani	61	33	20	0	5	3	0
Rukwa	27	15	7	1	4	0	0
Ruvuma	51	11	36	0	4	0	0
Shinyanga	125	44	59	0	9	7	6
Simiyu	59	12	36	0	5	5	1
Singida	47	21	16	0	8	0	2
Tabora	52	16	19	1	9	5	2
Tanga	143	41	91	2	9	0	0
Mainland	**2,551**	**953**	**1,111**	**37**	**197**	**84**	**236**
Pemba	3	3	0	0	0	0	0
Ugunja	25	15	5	0	2	3	0
Zanzibar	**28**	**18**	**5**	**0**	**2**	**3**	**0**
Tanzania	**2,579**	**971**	**1,116**	**37**	**199**	**87**	**236**

Annex 5: Tuberculosis and HIV positive patients notified 2015

REGION	Notified	Tested for HIV	HIV +ve TB	Referred to CTC	Referred from CTC	Registered for HIV Care	Started on ART	Started on CPT
Dar Ilala I	3,261	3,141	1,048	306	742	1,011	978	1,021
Dar Ilala II	1,188	1,078	386	127	259	375	371	386
Dar Kinondoni	4,494	4,179	1,351	441	910	1,289	1,300	1,351
Dar Temeke	4,747	4,723	1,953	611	1,342	1,849	1,736	1,938
Dar es Salaam	**13,690**	**13,121**	**4,738**	**1,485**	**3,253**	**4,524**	**4,385**	**4,696**
Arusha	3,128	2,951	773	262	511	738	726	747
Dodoma	1,980	1,944	523	464	59	523	349	404
Geita	2,051	1,770	717	127	590	618	561	669
Iringa	1,790	1,683	889	362	527	804	722	854
Kagera	1,947	1,829	635	426	209	579	489	571
Katavi	291	290	120	49	71	77	105	116
Kigoma	965	946	155	72	83	149	146	154
Kilimanjaro	2,239	1,948	658	289	369	533	492	533
Lindi	1,272	1,073	293	110	183	272	272	274
Manyara	2,488	2,469	322	208	114	308	269	320
Mara	2,351	2,265	721	165	556	636	512	681
Mbeya	3,706	3,580	1,949	572	1,377	1,752	1,519	1,804
Morogoro	3,216	3,112	995	661	334	902	827	988
Mtwara	1,766	1,719	387	152	235	387	383	386
Mwanza	3,745	3,383	1,381	540	841	1,264	998	1,350
Njombe	1,074	976	650	345	305	624	581	623
Pwani	2,058	2,040	675	175	500	661	572	622
Rukwa	489	517	141	113	28	141	131	114
Ruvuma	1,434	1,401	613	140	473	604	578	605
Shinyanga	2,044	1,895	966	283	683	923	826	925
Simiyu	1,554	1,430	508	208	300	505	461	506
Singida	1,359	1,262	265	153	112	265	245	264
Tabora	2,062	2,056	885	345	540	843	770	826
Tanga	2,628	2,455	825	361	464	799	744	812
Mainland	**61,327**	**58,115**	**20,784**	**8,067**	**12,717**	**19,431**	**17,663**	**19,844**
Pemba	348	328	36	5	31	34	31	33
Unguja	505	470	71	27	44	64	62	71
Zanzibar	**853**	**798**	**107**	**32**	**75**	**98**	**93**	**104**
Tanzania	**62,180**	**58,913**	**20,891**	**8,099**	**12,792**	**19,529**	**17,756**	**19,948**
		95%	35%			93%	85%	95%

Annex 6: Leprosy Patients reported by regions in 2015

Region	New cases		Return after default		Relapses After MDT		Relapses After DDS/Others		Total
	MB	PB	MB	PB	MB	PB	MB	PB	Total
Dar Ilala I	48	5	0	0	1	0	2	0	56
Dar Ilala II	5	0	1	0	0	0	0	0	6
Dar Kinondoni	57	13	2	0	3	0	3	0	78
Dar Temeke	71	14	2	1	1	0	0	0	89
Dar es Salaam	**181**	**32**	**5**	**1**	**5**	**0**	**5**	**0**	**229**
Arusha	3	0	0	0	0	0	0	0	3
Dodoma	42	1	0	0	1	0	0	0	44
Geita	91	13	0	0	6	0	2	0	112
Iringa	9	0	0	0	0	0	0	0	9
Kagera	45	7	2	0	3	0	0	0	57
Katavi	35	1	0	0	0	0	0	0	36
Kigoma	53	10	3	1	0	0	0	0	67
Kilimanjaro	9	2	1	0	0	0	0	0	12
Lindi	242	125	10	8	5	3	1	0	394
Manyara	9	1	0	0	0	0	0	0	10
Mara	7	8	0	0	0	0	0	1	16
Mbeya	27	1	0	0	4	0	0	0	32
Morogoro	221	34	0	0	1	1	0	0	257
Mtwara	125	28	2	0	5	0	9	0	169
Mwanza	74	7	1	0	0	0	1	0	83
Njombe	7	0	0	0	0	0	0	0	7
Pwani	100	15	2	0	3	0	0	0	120
Rukwa	160	13	0	0	0	0	1	0	174
Ruvuma	58	18	1	1	1	0	1	0	80
Shinyanga	43	4	0	0	0	0	9	0	56
Simiyu	4	0	0	0	0	0	0	0	4
Singida	15	1	0	0	2	0	0	0	18
Tabora	98	7	1	0	0	0	1	0	107
Tanga	169	37	6	0	6	0	2	0	220
Mainland	**1,827**	**365**	**34**	**11**	**42**	**4**	**32**	**1**	**2,316**
Pemba	15	2	0	0	0	0	0	0	17
Unguja	60	28	0	0	0	0	0	0	88
Zanzibar	**75**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**105**
Tanzania	**1,902**	**395**	**34**	**11**	**42**	**4**	**32**	**1**	**2,421**

Annex 7: Treatment outcome of MB leprosy Patients reported in 2013

Region	Completed treatment	Died	Transferred out	Out of Control	Total
Dar Ilala I	31	1	1	1	34
Dar Ilala II	27	0	2	1	30
Dar Kinondoni	54	0	5	2	61
Dar Temeke	48	2	0	1	51
Dar es Salaam	**160**	**3**	**8**	**5**	**176**
Arusha	4	0	1	4	9
Dodoma	46	0	3	2	51
Iringa	11	0	1	0	12
Kagera	68	0	3	3	74
Kigoma	71	1	2	2	76
Kilimanjaro	3	0	0	1	4
Lindi	139	1	2	1	143
Manyara	6	0	0	2	8
Mara	18	0	3	0	21
Mbeya	29	1	3	0	33
Morogoro	192	0	6	1	199
Mtwara	137	1	3	2	143
Mwanza	86	0	2	2	90
Pwani	63	0	0	1	64
Rukwa	117	0	2	1	120
Ruvuma	80	0	1	1	82
Shinyanga	70	0	1	2	73
Singida	21	0	1	3	25
Tabora	69	0	3	2	74
Tanga	99	0	1	1	101
Mainland	1,489	7	46	36	1,578
Pemba	10	0	1	1	12
Unguja	62	0	1	1	64
Zanzibar	**73**	**0**	**2**	**1**	**76**
Tanzania	**1,562**	**7**	**48**	**37**	**1,654**

Annex 8: Treatment outcome of PB leprosy Patients reported in 2014

Region	Completed treatment	Died	Transferred out	Out of Control	Total
Dar Ilala I	4	0	0	1	5
Dar Ilala II	0	0	0	0	0
Dar Kinondoni	5	1	0	0	6
Dar Temeke	5	1	0	0	6
Dar es Salaam	**14**	**2**	**0**	**1**	**17**
Arusha	0	0	0	0	0
Dodoma	0	0	0	0	0
Geita	9	0	0	2	11
Iringa	1	0	0	0	1
Kagera	4	0	0	1	5
Katavi	0	0	0	0	0
Kigoma	9	1	0	0	10
Kilimanjaro	0	0	0	0	0
Lindi	70	1	2	4	77
Manyara	0	0	0	0	0
Mara	12	0	0	2	14
Mbeya	0	0	0	0	0
Morogoro	41	0	1	3	45
Mtwara	28	1	1	1	31
Mwanza	2	0	0	0	2
Njombe	0	0	0	0	0
Pwani	14	1	1	0	16
Rukwa	24	1	1	1	27
Ruvuma	12	1	0	0	13
Shinyanga	5	0	0	1	6
Simiyu	2	0	0	0	2
Singida	1	0	0	0	1
Tabora	5	1	0	0	6
Tanga	26	1	0	3	30
Mainland	**279**	**10**	**6**	**19**	**314**
Pemba	0	0	0	0	0
Unguja	72	1	0	3	76
Zanzibar	**72**	**1**	**0**	**3**	**76**
Tanzania	**351**	**11**	**6**	**22**	**390**

Annex 9: Leprosy Patients Registered at the end of 2015

REGION	MB (A)	MB (C)	PB (A)	PB (C)	Total	Prevalence Rate
Dar Ilala I	37	0	1	0	38	0.3
Dar Ilala II	6	0	0	0	6	
Dar Kinondoni	58	1	0	0	59	0.3
Dar Temeke	59	3	5	1	68	0.4
Dar es Salaam	**160**	**4**	**6**	**1**	**171**	**0.3**
Arusha	0	0	0	0	0	0.0
Dodoma	23	0	2	19	44	0.2
Geita	82	6	2	1	91	0.5
Iringa	12	1	0	0	13	0.1
Kagera	24	1	0	0	25	0.1
Katavi	31	3	1	0	35	0.6
Kigoma	28	0	4	0	32	0.1
Kilimanjaro	6	0	1	0	7	0.0
Lindi	234	6	64	9	313	3.5
Manyara	5	0	0	0	5	0.0
Mara	7	0	4	0	11	0.1
Mbeya	22	0	0	0	22	0.1
Morogoro	137	3	10	1	151	0.6
Mtwara	131	4	11	3	149	1.1
Mwanza	31	1	1	0	33	0.1
Njombe	4	0	0	0	4	0.1
Pwani	94	3	7	1	105	0.9
Rukwa	239	3	2	1	245	2.2
Ruvuma	42	0	6	0	48	0.3
Shinyanga	72	0	5	0	77	0.5
Simiyu	3	0	0	0	3	0.0
Singida	21	0	1	0	22	0.1
Tabora	57	0	8	0	65	0.3
Tanga	117	1	10	0	128	0.6
Mainland	**1,582**	**36**	**145**	**36**	**1,799**	**0.4**
Pemba	13	0	2	0	15	0.4
Unguja	57	12	5	1	75	0.8
Zanzibar	**70**	**12**	**7**	**1**	**90**	**0.7**
Tanzania	**1,652**	**48**	**152**	**37**	**1,889**	**0.4**

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