

TDR Results 2020 Report

TDR Results

2020 Report

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1. Summary

The results achieved in 2020, despite the impact of the COVID-19 pandemic on field work, are remarkable, in terms of both technical tools, solutions and strategies, and as engagement and collaboration approaches.

TDR-trained researchers applied their skills to the COVID-19 response effort, validating our strategy of strengthening country capacity with each project we conduct. Several hundred of these researchers and programme officers have been involved in the COVID-19 response, in many countries around the world. Research training provided by TDR through its various training schemes has had benefits beyond research, with skills gained now being applied by 60% of respondents to various aspects of the COVID-19 pandemic response. In addition, a customized **training course on Good Clinical Practice (GCP) for research teams in all hospitals participating in the WHO "Solidarity" clinical trial** was developed and used by teams in countries through the WHO Academy's COVID-19 mobile learning app. The pandemic also made TDR swifter, as it pushed us to develop even more flexible, digital, online-based tools and activities, wherever possible.

Among the guidance and strategies that stakeholders are now using around the world are: the **guidance framework on testing sterile insect technology (SIT)** against the vectors of arboviral diseases, developed with the International Atomic Energy Agency; the **guidance framework on multisectoral approaches (MSAs) for prevention and control of vector-borne diseases (VBDs)** in countries, including case studies that provide real-life situations; and the **TDR intersectional gender research strategy**, consolidating the strategic direction to embrace intersectional gender analysis and promote an inclusive gender research agenda.

The numerous new tools used in countries include: a generic research package for **facilitating the use of all-oral MDR-TB treatment regimens** under operational research conditions developed in 2019 is now being used by 23 countries worldwide; WHO issued an information note about Pyramax (**artesunate-pyronaridine**) for uncomplicated malaria, a combination therapy developed by TDR and MMV several years ago, so that countries can procure the medicine and include it in their national treatment guidelines. We also validated a **crowdfunding model** for supporting scientists in countries to raise funds to finance their research, with the pilot projects having successfully fundraised.

A focus on **improved training opportunities for French-speaking researchers** led to the following outcomes: inclusion of a university in a French-speaking country in West Africa in the Postgraduate Training Scheme; establishment of a sub-regional training centre in francophone West Africa; and development of a SORT IT programme for French-speaking researchers.

The core values that TDR promotes were well represented in 2020. The ratio of contracts and grants awarded to women maintained its positive trend, and **gender equity** also sees the same positive trend for women first authors of TDR-supported publications. **Disease-endemic countries (DECs)** which are low- and middle-income with a burden of infectious diseases of poverty, remained the focus of TDR's portfolio of projects and received more than 70% of the funds allocated.

Half-way into the 2018–2023 strategy period, TDR has progressed significantly towards achieving its planned targets. Further insight and assessment will be provided by the Seventh External Review of the Programme, to be conducted in early 2022.

2. Expected results and overview of progress on key performance indicators

The 2020 Results Report measures a set of performance indicators against targets, in line with TDR's 2018–2023 Strategy and the [TDR Performance Framework 2018–2023](#), for planning, monitoring and evaluation. Now that we have reached the middle of the 6-year strategic period, this report shows the progress made on various indicators related to three overarching categories: technical expected results, application of organizational core values and managerial performance. Ultimately, TDR's outputs and outcomes contribute to health impact, measured through the achievement of Sustainable Development Goal (SDG) targets and the World Health Organization's (WHO) Thirteenth General Programme of Work (GPW13) triple billion targets.

Given the adoption of the Sustainable Development Goals by the global community in 2015, TDR developed its 2018–2023 strategy to showcase the Programme's unique contribution, through research, capacity strengthening and global engagement, to improved health, quality education, enhanced partnerships and other relevant SDG targets guiding international development work until 2030. The Performance Framework (including a revised set of indicators), which is aligned with TDR's 2018–2023 strategy, the GPW13 strategic objectives and SDG targets, has been in place since 2018.



As shown in Figure 1, TDR aims for a global impact to reduce the burden of infectious diseases of poverty. TDR's contribution is made possible by the overall outcome of the Programme, which is the translation of new knowledge, solutions and tools into policy and practice in disease endemic countries. These in turn are the result of three feeder outputs that support and complement each other, with the sustainability of research outputs being enhanced by the engagement of stakeholders and by the capacity built in countries.

Aligned with TDR's Strategy, the Performance Framework further demonstrates TDR's focus on health impact and value for money throughout the whole results chain, from using resources economically to building efficient processes, to quality of outputs and to partnering to enhance the sustainability of outcomes.

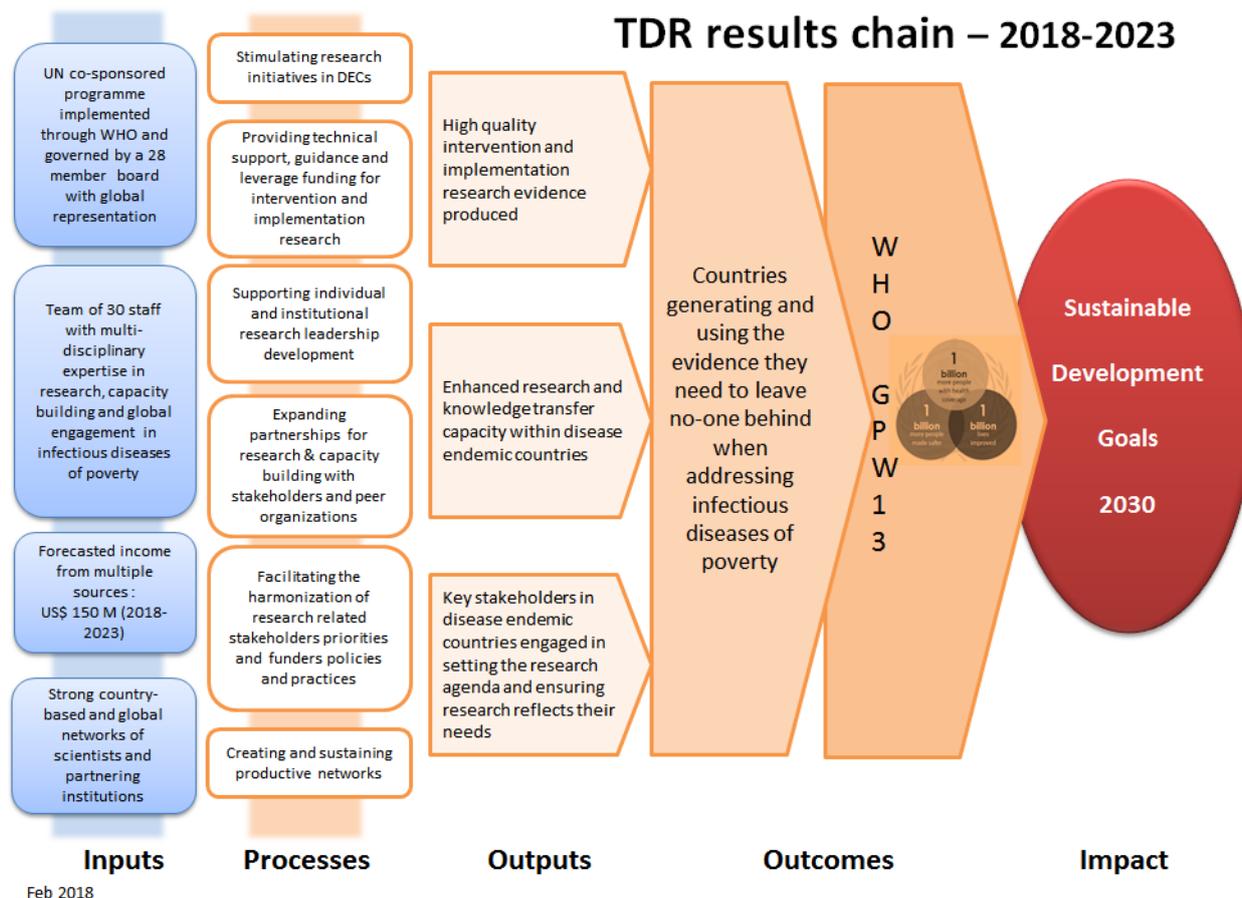


Figure 1. TDR results chain

TDR’s work is contributing to the research accelerator of the Global action plan for healthy lives and well-being for all¹ that aims to speed up progress towards the targets of SDG3 through a three-pronged approach: align, accelerate and account.

An overview of the progress made on each of TDR’s key performance indicators is presented in the monitoring and evaluation matrix below (see Table 1), with further details being provided in the body of this report.

¹ See <https://www.who.int/sdg/global-action-plan>

Table 1- TDR's key performance indicators matrix 2018–2023

Expected results	Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)	Frequency of measurement
<p>Technical expected results</p>					
<p>Impact:</p> <p>Countries generating and using the research evidence they need to leave no-one behind when acting to reduce the burden of infectious diseases of poverty.</p> <p><i>SDG3-Good health and wellbeing</i> <i>SDG4-Quality education</i> <i>SDG5-Gender equality</i> <i>SDG6-Clean water and sanitation</i> <i>SDG9-Industry, innovation and infrastructure</i> <i>SDG10-Reduce inequalities</i> <i>SDG11-Sustainable cities and communities</i> <i>SDG13-Climate action</i> <i>SDG17-Partnerships for the goals</i></p>	<ul style="list-style-type: none"> i. SDG3-Goal 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases. ii. SDG 3-Goal 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all. iii. SDG3-Goal 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines (...) iv. SDG3-Goal 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks. v. SDG13-Goal 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries vi. SDG9-Goal 9.5: Enhance scientific research, (...) encouraging innovation and substantially increasing the number of research and development workers per 1 million people (...) 			<p>Evaluation demonstrating the link between outcomes and the progress made towards achieving the relevant SDG goals</p>	

Expected results	Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)	Frequency of measurement
Outcome: Infectious disease knowledge, solutions and implementation strategies translated into policy and practice in disease endemic countries ²	1. Number and evidence when innovative knowledge or new/improved solutions/tools developed with TDR support are applied in disease endemic countries	0	100	83 (+44)	Measured annually, cumulative over 6 years
	2. Number and evidence when tools and reports are used to inform policy and/or practice of global/ regional stakeholders or major funding agencies	0	20	18 (+7)	Measured annually, cumulative over 6 years
	3. Evidence demonstrating the benefits of research on gender, on equity or on vulnerable groups, including people with disabilities, used to inform policy and/or practice	N/A	N/A	Evidence provided	Measured annually
Research outputs: High quality intervention and implementation research evidence produced in response to global and country needs	4. Number and evidence of innovative knowledge, new/improved solutions or implementation strategies developed in response to requests from WHO control programmes and/or diseases endemic countries and engaging disease endemic country stakeholders	0	25	46 (+13) 100%	Measured annually, cumulative over 6 years
	5. Number of research data sets/platforms that are i) open access or ii) with an access permission level	1	10	9 (i. 1, ii. 7) (+1)	Measured annually, cumulative over 6 years
Capacity strengthening outputs: Enhanced research and knowledge transfer capacity within disease endemic countries	6. Number and evidence of DEC institutions and networks demonstrating expanded scope of activities or increased funding from alternative sources, or that have influenced research agenda, policy and practice, as a result of or related to TDR support ³	0	5	11 (+2)	Measured annually, cumulative over 6 years
	7. Number of TDR grantees/trainees per year, and proportion demonstrating career progression and/or increased scientific productivity, disaggregated by gender	79 (2017) 85% (2014)	150 ≥80%	451* (+54*)	Measured on cohorts 3-5 years after training ended

² DEC: low- and middle-income countries where neglected diseases are prevalent / endemic

³ TDR support may include financial, in-kind, facilitation and/or expert types of support

Expected results	Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)	Frequency of measurement
Global engagement outputs: Key stakeholders engaged in harmonizing agenda and practices and in new initiatives	8. Number and evidence of research-related agendas, recommendations and practices agreed by stakeholders at global, regional or country level and facilitated by TDR	0	6	6 (+1)	Measured annually, cumulative over 6 years
	9. Evidence of stakeholder engagement in TDR joint initiatives aligned with TDR strategic objectives	N/A	N/A	To be reported at biennium end	Measured at the end of biennium
Application of core values					
Equity <u>Social and economic equity:</u>	10. Proportion of TDR grants/contracts awarded to institutions or individuals in DECs (total count and total amount)	62% (count) 74% (amount)	75% DEC	64% DEC (count) 71% DEC (amount)	Measured annually
	11. Proportion of experts from DECs on TDR external advisory committees	78%	>60%	70%	Measured annually
<u>Gender equity:</u>	12. Proportion of peer-reviewed publications supported by TDR with authors from DEC institutions (first author - FA, last author - LA, all authors - AA)	FA: 73% LA: 56% AA: N/A	≥67%	FA: 81% LA: 68% AA: 63%	Measured annually
	13. Number of peer-reviewed publications supported by TDR and percentage published in open/free access	200 88%	≥150/year 100%	214 93%	Measured annually
	14. Proportion of women among grantees/contract recipients (total count and total amount)	40% (count) 29% (amount)	50%	49% (count) 46% (amount)	Measured annually
	15. Proportion of women on TDR external advisory committees	50%	50%	60%	Measured annually
	16. Proportion of women authors of peer-reviewed publications supported by TDR (first author - FA, last author - LA)	FA: 38% LA: 24%	50%	FA: 45% LA: 30%	Measured annually
	17. Number and proportion of peer-reviewed publications explicitly considering: gender and women issues, vulnerable groups or people with disabilities	N/A	80%	Total: 75% Gender: 14% Vulnerable: 70% Disabilities: 9%	Measured annually

Expected results	Key performance indicators	Baseline (2017)	Target (2023)	Progress (<i>contrib. 2020</i>)	Frequency of measurement
Effective multisectoral partnerships	18. Resources leveraged as direct contributions (co-funding, services or in-kind) to TDR projects (examples)	\$ 1:1 (\$ TDR : \$ partners) People 1:30 (TDR : in the field)	< \$ 2:1	To be reported at biennium end	Measured at the end of biennium
Value-for-money	19. Evidence demonstrating value-for-money, cost savings and/or enhanced efficiency or effectiveness	N/A	N/A	To be reported at biennium end	Measured at the end of biennium
Quality of work	20. Proportion of project reports evaluated as satisfactory by external advisory committees	100%	>80%	To be reported at biennium end	Measured at the end of biennium
Sustainability of outcomes	21. Number of effective public health tools and strategies developed which have been in use for at least two years	0	40	To be reported at biennium end	Measured at the end of biennium
<i>Management performance</i>					
Effective resource mobilization	22. Percentage of approved biennial budget successfully funded	87.9% (US\$ 39.5/45M)	≥100%	To be reported at biennium end	Measured at the end of biennium
	23. Percentage of income received from multi-year, unconditional donor agreements	17.3% (US\$ 6.8M/39.5M)	70%	To be reported at biennium end	Measured at the end of biennium
Effective management	24. Percentage of staff workplans and performance reviews (including personal development plan) completed on time	89%	≥90%	100%	Measured annually
	25. Proportion of expected results on track	89%	≥80%	96%	Measured annually
	26. Proportion of significant risk management action plans that are on track	100%	≥80%	95%	Measured annually

3. Achieving TDR's scientific and technical objectives

The indicators covering TDR's achievement of expected results measure the outcome level as well as the outputs generated which, once translated into policy and practice, will have an impact on the burden of disease in countries, thus directly contributing to the Sustainable Development Goal targets and to WHO's GPW13 triple billion objectives. Achievements are reported in the technical teams' annual reports and measured against biennial targets approved by the Joint Coordinating Board in the year preceding each WHO biennium (e.g. approved in 2019 for the biennium 2020–2021).

3.1 Impact: Countries generating and using the research evidence they need to leave no-one behind when acting to reduce the burden of infectious diseases of poverty

TDR's Strategy 2018–2023 shows how activities and results are expected to contribute to the SDGs, particularly to SDG3, but also to others. The outcomes we plan to achieve are aligned with the strategic plans of our co-sponsors: the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the World Bank and WHO, all of which aim to advance sustainable development work, as illustrated in TDR's results chain. WHO's GPW13 prioritizes targets agreed at global level, with three areas taking centre stage: advancing universal health coverage, addressing health emergencies and promoting healthier populations. TDR's expected results contribute, either jointly or individually, to all of these strategic objectives.

The SDG indicators, together with baseline measures and targets, are being measured by WHO and other United Nations family agencies. Contributions that TDR outcomes are making towards achieving SDG and GPW13 targets are being assessed through external review of the Programme (every 5 or 6 years), and through evaluation of the strategic work areas of TDR, or of specific long-term projects, as appropriate.

3.2 Outcome: Infectious disease knowledge, solutions and implementation strategies translated into policy and practice in disease endemic countries

TDR works with partners in disease endemic countries (DECs) to generate essential knowledge and evidence for the prevention and control of infectious diseases of poverty, and to facilitate translation of the solutions into policy and improved health care in countries. TDR's approach leads to strengthening health systems operations and research systems in these countries, ultimately reducing the burden of infectious diseases of poverty.

This is done through three key mechanisms – the generation of new evidence and knowledge products, strengthening capacity in disease endemic countries to conduct good quality research, and building close working relationships with key policy-makers and programme staff to ensure the country priorities are guiding research, and thus the translation of new knowledge into effective disease control efforts is facilitated.

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contribution 2020)
1. Number and evidence when innovative knowledge or new/improved solutions/tools developed with TDR support are applied in disease endemic countries	0	100	83 (+44)
2. Number and evidence when tools and reports are used to inform policy and/or practice of global/regional stakeholders or major funding agencies	0	20	18 (+7)
3. Evidence demonstrating the benefits of research on gender, on equity or on vulnerable groups, including people with disabilities, used to inform policy and/or practice	N/A	N/A	Evidence provided

Indicator 1 - Number and evidence when innovative knowledge or new/improved solutions/tools developed with TDR support are applied in disease endemic countries

Several new tools, solutions and strategies generated with TDR support began being used by countries in 2020. There were 44 new instances where countries applied or utilized this new knowledge⁴. Below is a list, including the respective countries. Other tools have not yet reached implementation stage; their use will be reported on in future reports.

- ✓ **TDR-trained researchers applying their skills to the COVID-19 response effort.** Over 400 TDR-trained researchers and programme officers are involved in the COVID-19 response in many countries around the world, as shown in a recent survey of TDR alumni. Research training provided by TDR through its various training schemes has had benefits beyond research, with skills gained now being applied by 60% of respondents to various aspects of the COVID-19 pandemic response. As well as research, these include: critical preparedness and response; situation analysis; surveillance; infection control; and clinical management.⁵ (Global, four TDR initiatives surveyed.)
- ✓ TDR has developed a **customized training course on Good Clinical Practice (GCP) for research teams in all hospitals participating in the WHO "Solidarity" clinical trial** for COVID-19 treatments. This course is available through the WHO Academy's COVID-19 mobile learning app and has already been delivered to some country teams that enrolled patients in the Solidarity trial. (Number of countries to be determined.)
- ✓ A **guidance framework on testing sterile insect technology (SIT)** against the Aedes mosquito, vectors of arboviral diseases, was jointly developed with the International Atomic Energy Agency and released online in April 2020.⁶ The framework is a comprehensive guide for programme managers tasked with recommending a "go/no-go" decision on testing, full deployment and scale-up of SIT in regions of the world affected by diseases transmitted by Aedes mosquitoes. This informs stakeholders and all persons involved with SIT testing on vectors of human diseases about how to plan, develop, test and evaluate the impacts of the technology against Aedes mosquitoes, the main vectors of dengue, yellow fever, chikungunya and Zika. The framework covers the processes for decision support—including risk assessment and regulatory aspects, technical aspects (e.g. insect mass rearing), entomological and epidemiological indicators, as well as community involvement, cost-effectiveness and programme monitoring and evaluation. (Seven countries: Bangladesh, Brazil, China, Cuba, France, Italy and Thailand)

⁴ Each tool can be utilized by more than one country. A tool utilized by 3 countries counts as 3 instances of utilization

⁵ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7308898/pdf/f1000research-9-27669.pdf>

⁶ See <https://www.who.int/tdr/publications/year/2020/guidance-framework-for-testing-SIT/en/>

- ✓ **Decision support processes and tools to increase population resilience to climate change** developed and launched in 2018 were used in 2020 by the Masai community in Simanjiro, Arusha, the United Republic of Tanzania. Several methodologies were developed using remote sensing to monitor climate variability, environmental conditions and their impact on the dynamics of VBDs. The research initiative also demonstrated how remotely sensed data can be accessed and analysed, and how they can be integrated into research and decision-making processes for mapping risks and therefore allow pastoral populations to choose lower-risk areas for their herds to graze. (Tanzania)
- ✓ A focus on improved training opportunities for French-speaking researchers led to the following outcomes: **inclusion of a university in a French-speaking country in West Africa in the Postgraduate Training Scheme**; establishment of a **sub-regional RTC in francophone West Africa**; and development of a **SORT IT programme for French-speaking researchers**. (Three outcomes, two countries: Burkina Faso, Senegal)
- ✓ Expansion of the use of EWARS for dengue outbreak preparedness in nine new countries through collaboration with WHO-PHE⁷ and improvement of the tool by integrating an environmental dimension in the model. The **3rd generation of EWARS** was developed and tested in 2019 and 2020 with automatic calibration of thresholds, which also included the addition of risk mapping into the tool. At this stage, only one country (Mexico) has fully integrated EWARS into their surveillance system, and thirteen countries are piloting the tool to include it later in their surveillance system: *Bangladesh, Cambodia, Colombia, Ethiopia, India, Malawi, Malaysia, Mozambique, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste*. (Eight new countries)
- ✓ A **generic research package for facilitating the use of all-oral MDR-TB treatment regimens under operational research conditions**⁸ was developed in 2019 and is now being used by 23 countries worldwide. The research packaged, called Short, all-Oral Regimens for Rifampicin-resistant Tuberculosis (ShORRT), provides patients with access to a new, less toxic TB treatment regimen for a shorter duration. (23 countries)
- ✓ TDR Global tested and validated a **crowdfunding model for supporting scientists in countries** raise funds to finance their research. A contest was organized; the purpose of the contest was to solicit research proposals from LMIC researchers and then provide training and mentorship for the five selected finalists, on how to organize successful crowdfunding campaigns. As a result, one of the finalists, Dr Teerawat Wiwatpanit from Thailand, launched his campaign “Modelling Zika virus transmission from mother to child using uterine mini-organs” in October, and successfully funded the goal of US\$ 8000. The other four fundraising campaigns were delayed due to the Covid19 pandemic and should be starting in 2021.

⁷ WHO Public Health, Environmental and Social Determinants of Health Department

⁸ See https://www.who.int/tdr/research/tb_hiv/shorrt/en/

Indicator 2 - Number and evidence when tools and reports are used to inform policy and/or practice of global/regional stakeholders or major funding agencies

- ✓ A **guidance framework on multisectoral approaches (MSAs) for prevention and control of vector-borne diseases (VBDs)** was developed and released online in April 2020.⁹ The document was prepared to support WHO Member States and other relevant actors in the fight against VBDs through the use of concerted, facilitating, inclusive, participatory and sustainable MSAs. The guidance presents a conceptual framework covering the essential elements of successful multisectoral collaborations, which is based on systematic reviews of evidence from programmes for the prevention and control of VBDs. Both a coordination and sectoral pathway are described, and guidance is provided for a non-exhaustive list of sectors. Case studies provide real-life situations.¹⁰ (Used by research/government institutions working on multisectoral approach as well as by other WHO operational programmes such as NTD¹¹, WASH¹², GMP¹³ and others).
- ✓ TDR led a WHO Science Division working group to develop a **guide for WHO staff managing research priority setting exercises**. Based on a collection of good practice examples and methodologies drawn from across WHO and more widely, the document provides guidance to staff who need to plan and manage a research priority-setting exercise.¹⁴
- ✓ TDR supported SARIMA¹⁵ to develop a framework for research management¹⁶, applicable to broader low- and middle-income (LMIC) settings. The **Professional Competency Framework** helps normalize some dimensions of research management work, supporting its professionalization as a disciplinary field. The framework is being used in universities in Southern Africa, which have started to implement competencies for research management for their research management offices, as well as by regional associations, SARIMA, WARIMA¹⁷, EARIMA¹⁸, BRAMA¹⁹.
- ✓ TDR has taken the first step in promoting a systematic approach to mapping externally funded activities to strengthen research capacity. TDR collaborated with the European and Developing Countries Clinical Trials Partnership (EDCTP) to **map externally funded international postgraduate training at institutions in sub-Saharan Africa**. The paper on the joint TDR and EDCTP mapping that was published in *Globalization and Health* in 2018²⁰ has been circulated to all agencies which were contacted at the start of the mapping exercise, to stimulate a discussion on how the big external funders of research capacity strengthening activities can collaborate in putting this sort of mapping on a systematic footing. The United Kingdom Department for International Development (DFID) used this report to inform a survey of the government's development spending on postgraduate training (in both Africa and the United Kingdom) and of the diversity of schemes being led by different ministries and organizations in Africa, across all subjects. (EDCTP, the United Kingdom, other stakeholders)

⁹ See <https://www.who.int/tdr/publications/year/2020/mca-for-prevention-and-control-of-vbds/en/>

¹⁰ See additional publications here https://academic.oup.com/jid/issue/222/Supplement_8

¹¹ WHO Control of Neglected Tropical Diseases Department

¹² WHO's provision of safe water, sanitation and hygiene intervention team

¹³ WHO Global Malaria Programme

¹⁴ See <https://apps.who.int/iris/bitstream/handle/10665/334408/9789240009622-eng.pdf?sequence=1&isAllowed=y>

¹⁵ Southern Africa Research and Innovation Management Association

¹⁶ See <https://www.sarima.co.za/resources/research-management/>

¹⁷ West African Research and Innovation Management Association

¹⁸ Eastern Africa Research & Innovation Management Association

¹⁹ Brazilian Research Administration and Management Association

²⁰ See <https://rdcu.be/3Q5D>

- ✓ A **digital application** has been developed for TDR by The Global Health Network which has been built upon the finalized TDR framework for core competencies in clinical research. It includes a competency wheel²¹ that visually represents the framework with its 50 competencies, as well as a dictionary which provides details on each competency²². These two core documents are supported by practical implementation tools to support assessment and follow-up of an individual's competencies²³. The application is now functional and embedded in the professional membership scheme (PMS) through The Global Health Network. (Global)
- ✓ An analysis of the product pipeline for neglected diseases was undertaken by Duke University with Policy Cures Research using the **TDR-developed Portfolio-to-Impact (P2I) R&D modelling tool and Health Product Profile Directory**. The pipeline analysis for 2019 estimated, that over a 30-year period the current pipeline would lead to 207 launches, costing US\$ 21 billion. There would still be 16 “missing products” (i.e. no new products), which would cost US\$ 5.5 to \$14.2 billion (depending on product complexity) to develop. The full analysis is published on the TDR Gateway²⁴. (Global)
- ✓ WHO issues information note about **Pyramax®** (artesunate-pyronaridine) for uncomplicated malaria: **countries can procure the medicine and include it in their national treatment guidelines**. “Artesunate-pyronaridine can be considered a safe and efficacious artemisinin-based combination therapy (ACT) for the treatment of uncomplicated malaria in adults and children weighing 5 kg and over in all malaria-endemic areas. Countries can consider including this medicine in their national treatment guidelines, procure it, and monitor its safety and efficacy.” In June 2017, artesunate-pyronaridine was also added to the WHO Model List of Essential Medicines and Model List of Essential Medicines for Children. It was TDR that initiated the development of Pyramax, and MMV took over the project and the partnership with the industry partner, as TDR moved away from the pharmaceutical R&D work area. (Global)

Indicator 3 - Evidence demonstrating the benefits of research on gender, on equity or on vulnerable groups, including people with disabilities, used to inform policy and/or practice

The University of the Witwatersrand in South Africa offered the gender-based analysis training course in September 2020. The Wits School of Public Health is also initiating a new degree programme starting in 2021 – a Bachelor of Health Sciences Honours in Public Health. This is a one-year full-time programme for students wanting to pursue postgraduate studies in public health. The “Gender-based analysis of infectious diseases and climate change” was approved in 2020 as one of the courses which students can take as part of a new honours programme. It will run with slight modifications online using all five modules. The first cohort of students selected following the 30 September 2020 closing date will begin their academic programme in February 2021.

²¹ See <https://globalhealthtrials.tghn.org/competencywheel/>

²² See https://globalhealthtrials.tghn.org/site_media/media/medialibrary/2016/11/TDR_Framework_Competency_Dictionary.pdf

²³ See <https://globalhealthtrials.tghn.org/competencyradar/>

²⁴ See <https://doi.org/10.12688/f1000research.24015.1>

3.3 Research outputs: High quality intervention and implementation research evidence produced in response to global and country needs

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
4. Number and evidence of innovative knowledge, new/improved solutions or implementation strategies developed in response to requests from WHO control programmes and/or diseases endemic countries and engaging disease endemic country stakeholders	0	25	46 (+13) 100%
5. Number of research data sets/platforms that are i) open access or ii) with an access permission level	1	10	9 (i. 1, ii. 7) (+1)

Indicator 4 - Number and evidence of innovative knowledge, new/improved solutions or implementation strategies developed in response to requests from WHO control programmes and/or diseases endemic countries and engaging disease endemic country stakeholders

In 2020, the following research outputs were delivered at the request of WHO control programmes and/or diseases endemic countries, engaging DEC stakeholders. Note that some began to be used by stakeholders in countries, regions or globally, during the course of 2020, therefore becoming outcomes.

- ✓ TDR has developed a customized **training course on Good Clinical Practice for research teams in hospitals participating in the WHO "Solidarity" clinical trial** for COVID-19 treatments. This course is available on WHO Academy's COVID-19 mobile learning app and has already been delivered to some country teams that enrolled patients in the Solidarity trial.
- ✓ A focus on improved training opportunities for French-speaking researchers led to the inclusion of **a university in a French-speaking country** in West Africa in the Postgraduate Training Scheme; the establishment of a **sub-regional training centre in francophone West Africa**; and development of a **SORT IT programme for French-speaking researchers**.
- ✓ TDR led a WHO Science Division working group to develop a **guide for WHO staff managing research priority setting exercises**. The document provides guidance to those who need to plan and manage a research priority-setting exercise. It is based on a collection of good practice examples and methodologies drawn from across WHO and more widely.
- ✓ In the field of vector control and urban health, research commissioned by TDR and published previously also led to **six evidence briefs for policy**. These briefs, which target a global audience, were prepared through broad international consultation and in collaboration with policy-makers (ministries of health) from three LMICs: Brazil, Burkina Faso and Colombia.²⁵ The six briefs address the following topics:
 - an easy way to implement rapid diagnostic tests for vector-borne and other infectious diseases
 - integrated surveillance systems to cut off vector-borne diseases in cities
 - integrated vector management implementation in disease-endemic areas to reduce mosquito populations
 - global threat of vector-borne disease transmission and co-infection in urban areas
 - containment measures for emerging and re-emerging vector-borne and other infectious diseases
 - challenges in housing/hygiene interventions in the prevention/control of vector-borne diseases.

²⁵ See <https://www.equiperenard.org/verdas-en>

- ✓ A **guidance framework on testing sterile insect technology (SIT)** against the Aedes mosquito, vectors of arboviral diseases, was jointly developed with the International Atomic Energy Agency and released online in April 2020.²⁶ The framework is a comprehensive guide for programme managers tasked with recommending a “go/no-go” decision on testing, full deployment and scale-up of the sterile insect technique in regions of the world affected by diseases transmitted by Aedes mosquitoes. This informs stakeholders and all persons involved with SIT testing on vectors of human diseases about how to plan, develop, test and evaluate the impacts of the technology against Aedes mosquitoes, the main vectors of dengue, yellow fever, chikungunya and Zika. The framework covers the processes for decision support—including risk assessment and regulatory aspects, technical aspects (e.g. insect mass rearing), entomological and epidemiological indicators, as well as community involvement, cost-effectiveness and programme monitoring and evaluation.
- ✓ The **TDR intersectional gender research strategy** was launched in June 2020, consolidating the strategic direction to embrace intersectional gender analysis and promote an inclusive gender research agenda within TDR’s core research and research capacity strengthening efforts.²⁷
- ✓ The development of an **implementation research toolkit for the use of digital technology for TB control** is now completed.²⁸
- ✓ Development of a **TB costing tool for favouring the integration of a health economics component in implementation research projects** is completed. Since the end of 2019, in collaboration with McGill University, Action Contre la Faim and GTB, TDR has been leading the development of a TB costing tool to facilitate the integration of a health economic component within implementation research projects. The English and French versions of this tool will be available online in Q1 2021.
- ✓ To promote “locally generated research, with local solutions and local ownership”, **SORT IT** alumni have championed the establishment of **three operational research hubs: in Armenia and Ukraine** (for EECA countries) and in Ethiopia - linked to the Africa Centres for Disease Control and Prevention (Africa CDC).
- ✓ To overcome COVID-19 restrictions, an **innovative online SORT IT virtual platform was developed** to enable trainings to continue into 2021 and beyond.
- ✓ The **TDR Global Discovery module** is the new public platform of TDR Global. Following user feedback, functionalities were added such as searching by key topic, by networking availability, filtering by region or country, and other tools that allow users, both individuals and institutions, to easily find a collaboration or mentor.
- ✓ **TDR Global regional nodes have been established** within the TDR-supported regional training centres in Africa, Asia and Latin America and have begun leading TDR global activities, including building TDR communities at regional level and crowdsourcing to identify/select mentorship activities and TDR Global champions.
- ✓ **The MOOC on implementation research** has been developed in English, French and Spanish. Translations into Chinese, Russian and Arabic are under way.

²⁶ See <https://www.who.int/tdr/publications/year/2020/guidance-framework-for-testing-SIT/en/>

²⁷ See <https://apps.who.int/iris/bitstream/handle/10665/332288/9789240005068-eng.pdf?ua=1>

²⁸ A web version of the tool is available at <https://ir4dtb.org>

Indicator 5 - Number of research data sets/platforms that are: i) open access; or ii) with an access permission level

Safety first: TDR brings safety to the fore as an essential element of evidence-based decision-making. Three initiatives continue from previous years which will gradually be transitioned to be hosted and managed by other stakeholders:

- ✓ Database for countries to share **safety data on drug exposures during pregnancy** (in collaboration with the WHO HIV Department) (Gated access)
- ✓ Database on **novel treatments for multidrug-resistant TB** (in collaboration with the WHO Global TB Programme) (Gated access)
- ✓ The **TB-Platform for Aggregation of Clinical TB Studies** (TB-PACTS) is a partnership among the institutions providing data: TDR, the TB Alliance, and St. George's School of Medicine at the University of London, with the platform developed by the Critical Path Institute (C-Path) (Gated access)

These will generate evidence of drug safety in routine use that is needed to support treatment guidelines.

TDR works with the **Infectious Diseases Data Observatory (IDDO)**²⁹, which includes the Worldwide Antimalarial Resistance Network³⁰ and the research community, to create efficient and ethical platforms for the sharing of research data in the areas of tuberculosis, malaria, Chagas disease, leishmaniasis, schistosomiasis and other soil transmitted helminths, and Ebola. The data on these platforms is available for use by researchers that apply for access with a protocol in line with a community-developed research agenda. In 2020, of the first 4 applications to the **Ebola Data Platform**, three were Principal Investigators from Ebola endemic countries.

TDR provides input to the development of the governance procedures and provides the chair for the Data Access Committees for these resources, as well as a for a new partnership between IDDO and ISARIC for the COVID-19 database. TDR has also been active in the **Data Sharing Working Group of the COVID-19 Clinical Research Coalition**, supporting a number of research projects to investigate how best to support researchers from LMICs to access, use and share COVID-19 data.

3.4 Capacity strengthening outputs: Enhanced research and knowledge transfer capacity within disease endemic countries

The generation of new research evidence comes as a result of research and capacity strengthening projects and grants, as well as convening and priority setting activities that TDR funds.

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
6. Number and evidence of DEC institutions and networks demonstrating expanded scope of activities or increased funding from alternative sources, or that have influenced research agenda, policy and practice, as a result or related to TDR support	0	5	11 (+2)
7. Number of TDR grantees/trainees per year, and proportion demonstrating career progression and/or increased scientific productivity, disaggregated by gender	79* (2017) 85% (2014)	150* ≥80%	451* (+54*)

* Only counting trainees and recipients of individual training grants

²⁹ See IDDO <https://www.iddo.org/>

³⁰ See WWARN <https://www.wwarn.org/>

Indicator 6 - Number and evidence of DEC institutions and networks demonstrating expanded scope of activities or increased funding from alternative sources, or that have influenced research agenda, policy and practice, as a result or related to TDR support

- ✓ The **WIN Network** was created a few years ago with financial support from TDR in collaboration with WHO-NTD. The network is active and providing essential knowledge and training on insecticide resistance to the global community. In 2020, the WIN network published two free-access video tutorials³¹ on testing procedures for resistance monitoring in adult sandflies. These are expected to provide technicians, students, operators and academics with the necessary knowledge and practical skills to conduct basic resistance tests following standardized WHO methodologies and reporting systems. Test protocols described in the videos are not restricted to sandflies and can be readily adapted to other flying insects such as mosquitoes. The goal is to strengthen country capacity for insecticide resistance monitoring, to support decision-making for vector control and good management practices.
- ✓ **SIHI network expanded and enhanced globally.** SIHI operational country hubs in China, Colombia, Malawi, the Philippines, South Africa and Uganda, have effectively institutionalized social innovation research as a multi-disciplinary approach in their respective organizations. New partnerships in 2020 established SIHI hubs in Ghana, Honduras, Indonesia, Nigeria and Rwanda. The SIHI Secretariat has been established in the Philippines to coordinate the network and its communication.

Indicator 7 - Number of TDR grantees/trainees per year, and proportion demonstrating career progression and/or increased scientific productivity, disaggregated by gender

In 2020, TDR added 54 new trainees across the postgraduate training scheme on implementation research at the seven universities funded by TDR in regions, the Clinical Research and Development Fellowship scheme, the regional office small grants scheme and SORT IT.

TDR's Regional Training Centres continued to offer face-to-face courses in 2020, however, due to the COVID-19 situation, some training courses were postponed until a later date.

Due to the COVID-19 situation and the need to develop online trainings, TDR was requested to set up different **MOOC sessions**. Several **MOOC courses in English**, one in French and one in Spanish were organized between January and August 2020 and attracted a wide audience.

- The first course in English attracted 927 participants from 86 countries. Of those who enrolled, 267 (28.8%) successfully completed the course, 48.3% of whom were women.
- The second course was run specifically for the 16 students trained through the TDR Postgraduate Training Scheme at the University of the Witwatersrand, Johannesburg, South Africa. The MOOC was used in a blended training course to develop a Letter of Intent, which will be the basis of their research study during the Master's degree.
- The third course was run from May to September 2020, specifically for the Global Research on Implementation and Translation Science (GRIT) consortium, which is a collaborative platform of eight LMICs to advance the implementation science research agenda targeted at building capacity and reducing the burden of cardiovascular diseases in LMICs. The 131 participants who registered were from eight countries.
- The fourth course was run from August to October 2020, mainly for the University of Pennsylvania, Philadelphia, USA, to develop implementation research competencies in their staff and collaborators, but was also open to other participants. A total of 334 participants enrolled in the course, of whom 194 were from the University and 140 from a wide range of countries.

³¹ To access the video tutorials, please click on the following link: <https://win-network.ird.fr/>

- The fifth course attracted 877 participants, with 232 (26.5%) successfully completing the course. The participants were from 82 countries.
- The sixth course was run from December 2020 to February 2021 for 24 researchers and implementers involved in an m-Health project funded by the United States National Institutes of Health to improve HIV testing, linkage and HIV care outcomes among youth aged 15 to 24 years in Nigeria.

A **MOOC session in French** attracted 365 participants, of whom 88 (24%) successfully completed the course. The participants were from 28 countries and 46% were women.

A **MOOC session in Spanish** ran from September to December 2020 and attracted 1 865 participants, of whom 511 (28%) successfully completed the course.

3.5 Global engagement outputs: Key stakeholders engaged in harmonizing agenda and practices and in new initiatives

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2019)
8. Number and evidence of research-related agendas, recommendations and practices agreed by stakeholders at global, regional or country level and facilitated by TDR	0	6	6 (+1)
9. Evidence of stakeholder engagement in TDR joint initiatives aligned with TDR strategic objectives	N/A	N/A	To be reported at biennium end

Indicator 8 - Number and evidence of research-related agendas, recommendations and practices agreed by stakeholders at global, regional or country level and facilitated by TDR

- ✓ TDR supported SARIMA to develop a framework for research management³², applicable to broader LMIC settings. The **Professional Competency Framework** helps normalize some dimensions of the research management work, supporting its professionalization as a disciplinary field.
- ✓ An analysis of the product pipeline for neglected diseases was undertaken by Duke University with Policy Cures Research using the **TDR-developed Portfolio-to-Impact (P2I) R&D modelling tool** and **Health Product Profile Directory**. The pipeline analysis for 2019 estimated that over a 30-year period the current pipeline would lead to 207 launches, costing US\$ 21 billion.

Indicator 9 - Evidence of stakeholder engagement in TDR joint initiatives aligned with TDR strategic objectives

To be reported at the end of the biennium.

³² See <https://www.sarima.co.za/resources/research-management/>

4. Application of core values

4.1 Socio-economic and gender equity

TDR is a Research Fairness Initiative reporting organization and has been externally evaluated as an organization that can use the RFI logo, demonstrating its fairness in:

- Opportunities: involvement of all stakeholders in our work to ensure impact at country level.
- Processes: measures our commitment to equity in how our programmes are implemented.
- Benefits: fairness in the sharing of costs and outcomes in our research and seeking to apply best practices in our research collaborations and partnerships.

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
10. Proportion of TDR grants/contracts awarded to institutions or individuals in DECs (total count and total amount)	62% (count) 74% (amount)	75% DEC	64% DEC (count) 71% DEC (amount)
11. Proportion of experts from DECs on TDR external advisory committees	78%	>60%	70%
12. Proportion of peer-reviewed publications supported by TDR with authors from DEC institutions (first author - FA, last author - LA, all authors - AA)	FA: 73% LA: 56% AA: N/A	≥67%	FA: 81% LA: 68% AA: 63%
13. Number of peer-reviewed publications supported by TDR and percentage published in open/free access	200 88%	≥150/year 100%	214 93%
14. Proportion of women among grantees/contract recipients (total count and total amount)	40% (count) 29% (amount)	50%	49% (count) 46% (amount)
15. Proportion of women on TDR external advisory committees	50%	50%	60%
16. Proportion of women authors of peer-reviewed publications supported by TDR (first author - FA, last author - LA)	FA: 38% LA: 24%	50%	FA: 45% LA: 30%
17. Number and proportion of peer-reviewed publications explicitly considering: gender and women issues, vulnerable groups or people with disabilities	N/A	80%	Total: 75% Gender: 14% Vulnerable: 70% Disabilities: 9%

Indicator 10 - Proportion of TDR grants/contracts awarded to institutions or individuals in DECs (total count and total amount)

In 2020, the total dollar amount of grants and contracts awarded to institutions and researchers in DECs (US\$ 6.4 million) was 71% of the total. When measuring the number of grants and contracts awarded to institutions and researchers in DECs, 63% of Principal Investigators were from DECs, receiving 64% of the contracts, an increase from 62% in 2019. The average amount of a contract/grant was higher for DECs than non-DECs.



Figure 2. Countries where individuals or institutions received grants or contracts in 2020

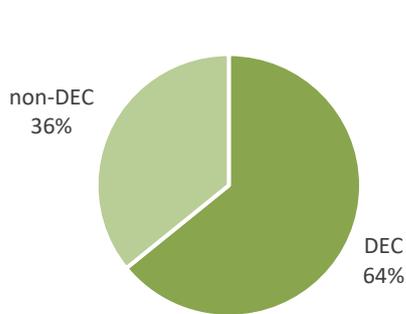


Figure 3. GRANTS/CONTRACTS: proportion awarded to disease endemic countries (% count) in 2020

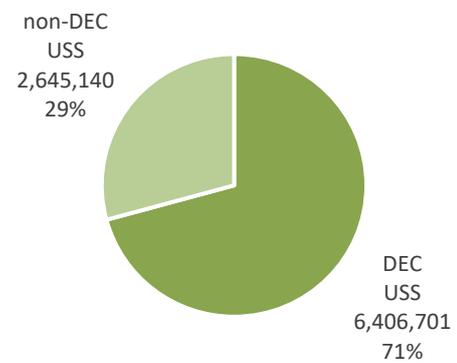


Figure 4. GRANTS/CONTRACTS: proportion awarded to disease endemic countries (% amount) in 2020

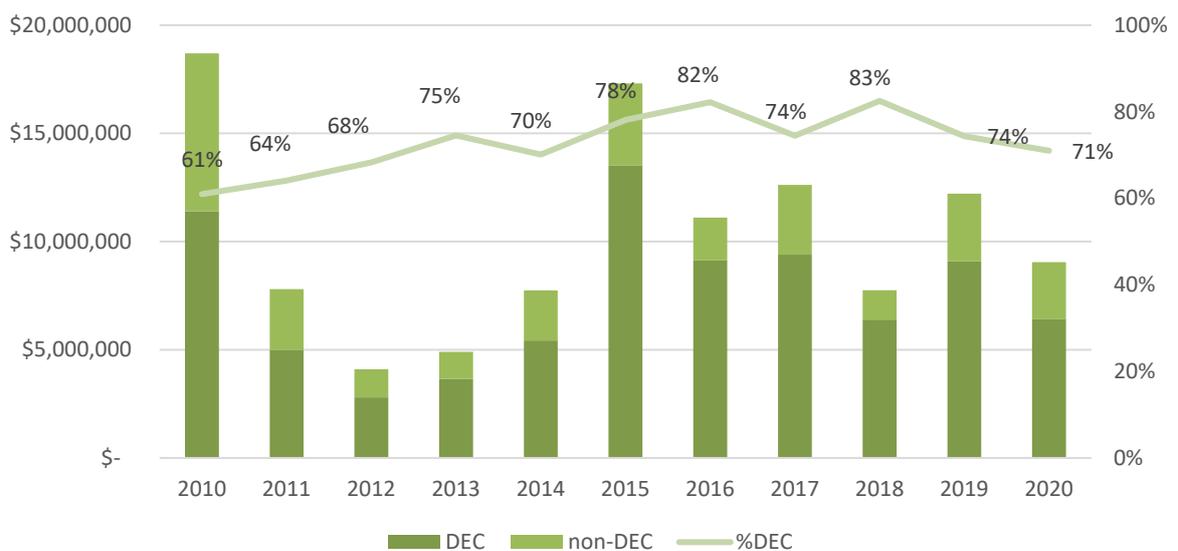


Figure 5. GRANTS/CONTRACTS: yearly progress in amounts and proportion awarded to DEC (US dollars)

Indicator 11 - Proportion of experts from DEC on TDR external advisory committees

In 2020, the proportion of TDR advisers originating from low- and middle-income disease endemic countries remained at 70%, well above the target of 60%.

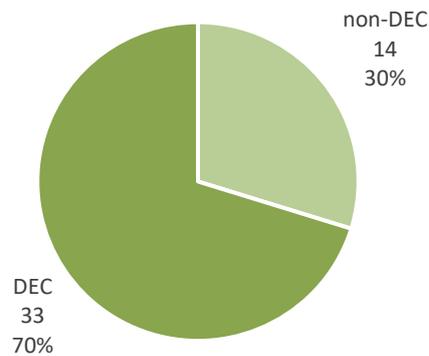


Figure 6. EQUITY: Proportion of advisers from disease endemic countries, 2020

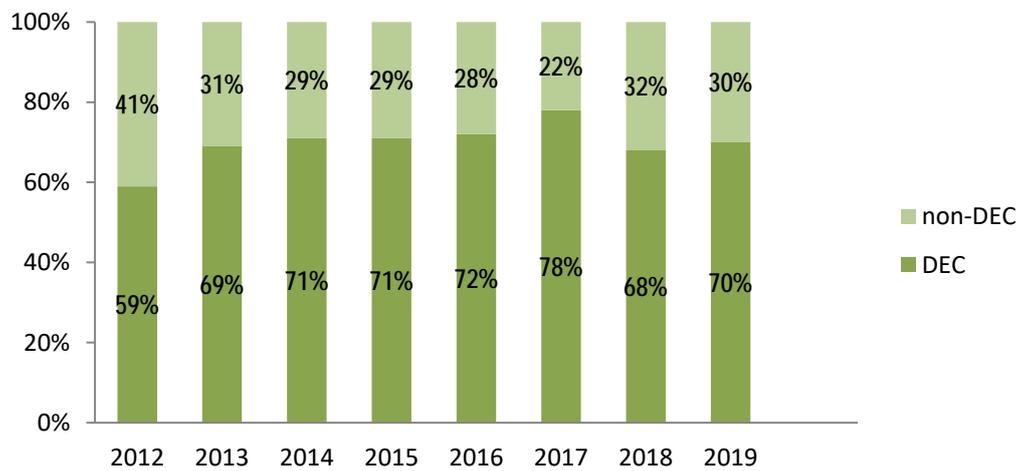


Figure 7. EQUITY: Proportion of advisers from disease endemic countries, 2012 to 2020

Indicator 12 - Proportion of peer-reviewed publications supported by TDR with authors from DEC institutions (first author, last author)

There were 214 TDR-supported peer reviewed publications in 2020. Among the authors of these publications, the proportion of first authors from DEC institutions was 81%, remaining well above the 67% target. This reflects TDR’s continued focus on building capacity and leadership for health research in low- and middle-income countries.



Figure 8. EQUITY: Proportion of first authors from DEC institutions, yearly progress 2008 to 2020

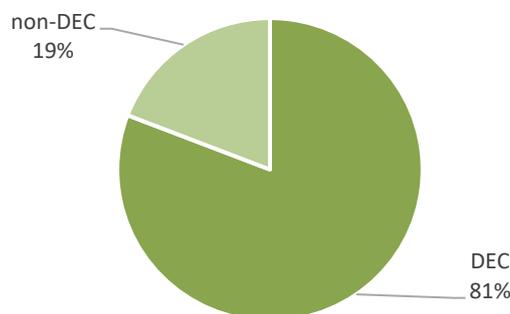


Figure 9. EQUITY: Proportion of first authors from DEC institutions, 2020

The graphs below show the relative distribution of first authors by gender and country of origin (women, men, DEC, non-DEC) in 2018, 2019 and 2020.

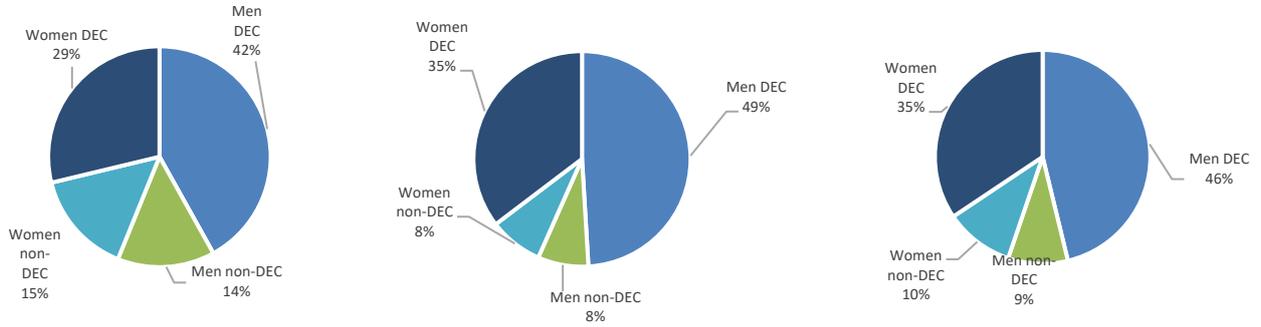


Figure 10. EQUITY: Distribution of first authors by gender and DECs, 2018, 2019 and 2020

At the same time, we measured the proportion of last authors from DECs, which was 68% in 2020, an increase compared to 2019 (63%) and 2018 (60%), and above the baseline established in 2017 (56%). The trend points upward, paralleling the first authors curve.

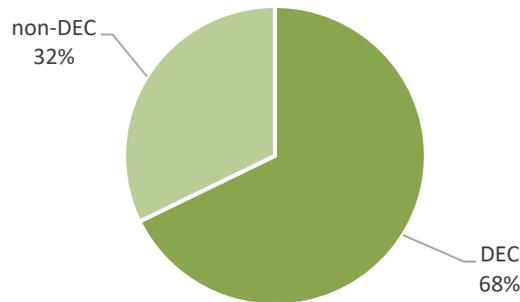


Figure 11. EQUITY: Proportion of last authors from DECs, 2020

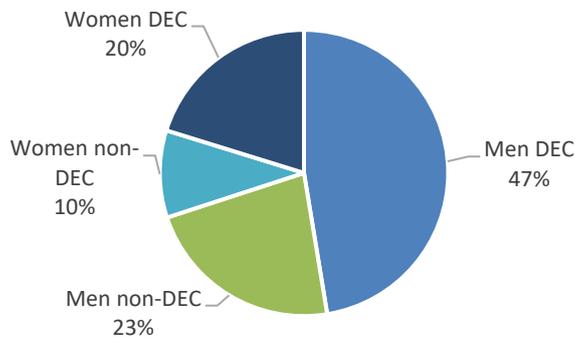


Figure 12. EQUITY: Distribution of last authors by gender and DECs, 2020

We also continue to measure the proportion of authors from DECs among all authors of a publication. For this, we took a random sample of 10% of all publications and checked the country of each author. The result (on a sample of 18 publications and 149 authors) showed that 63% of authors sampled were from DECs.

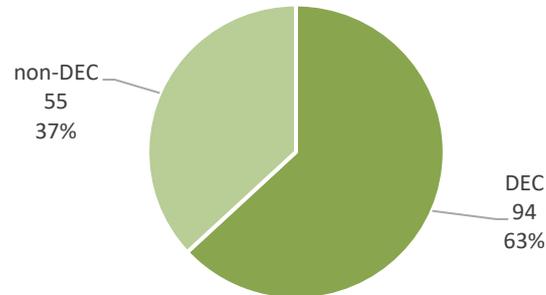


Figure 13. EQUITY: Proportion of authors from DECs among all authors, 2020 (sample = 18 publications, 149 authors)

First authors originated from 56 countries around the globe in 2020, compared to 53 countries in 2019. Country representation is illustrated in the map below, as well as in Figure 15. Note that in the top 20 countries with most first authors, 16 are low- and middle-income countries and four are high-income. The countries ranking highest include numerous SORT IT publications, which every year come from a few countries, in high numbers.

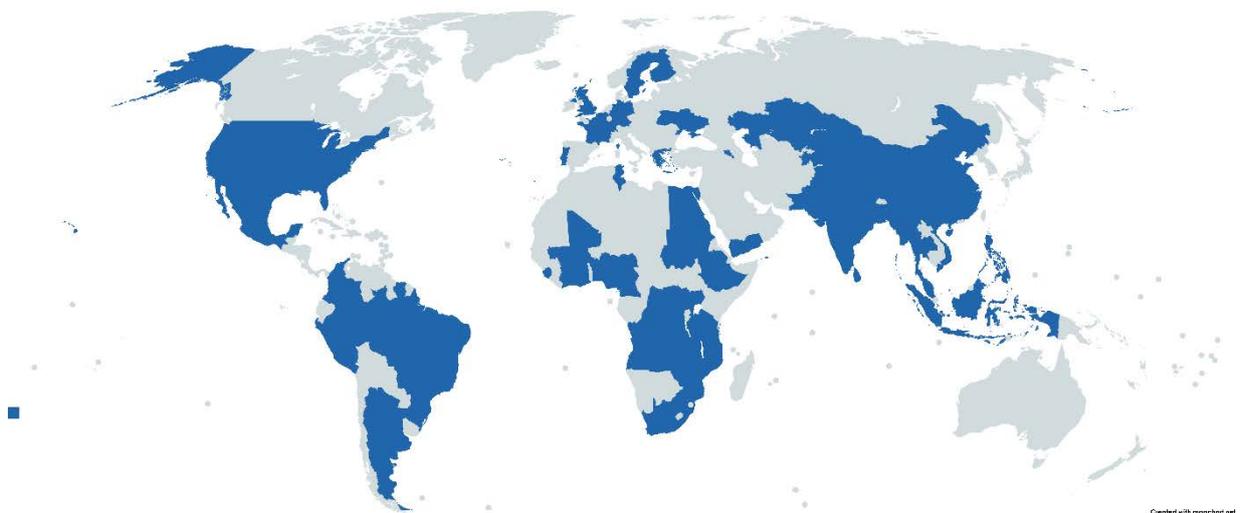


Figure 14. Countries of first authors of TDR-supported publications in 2020

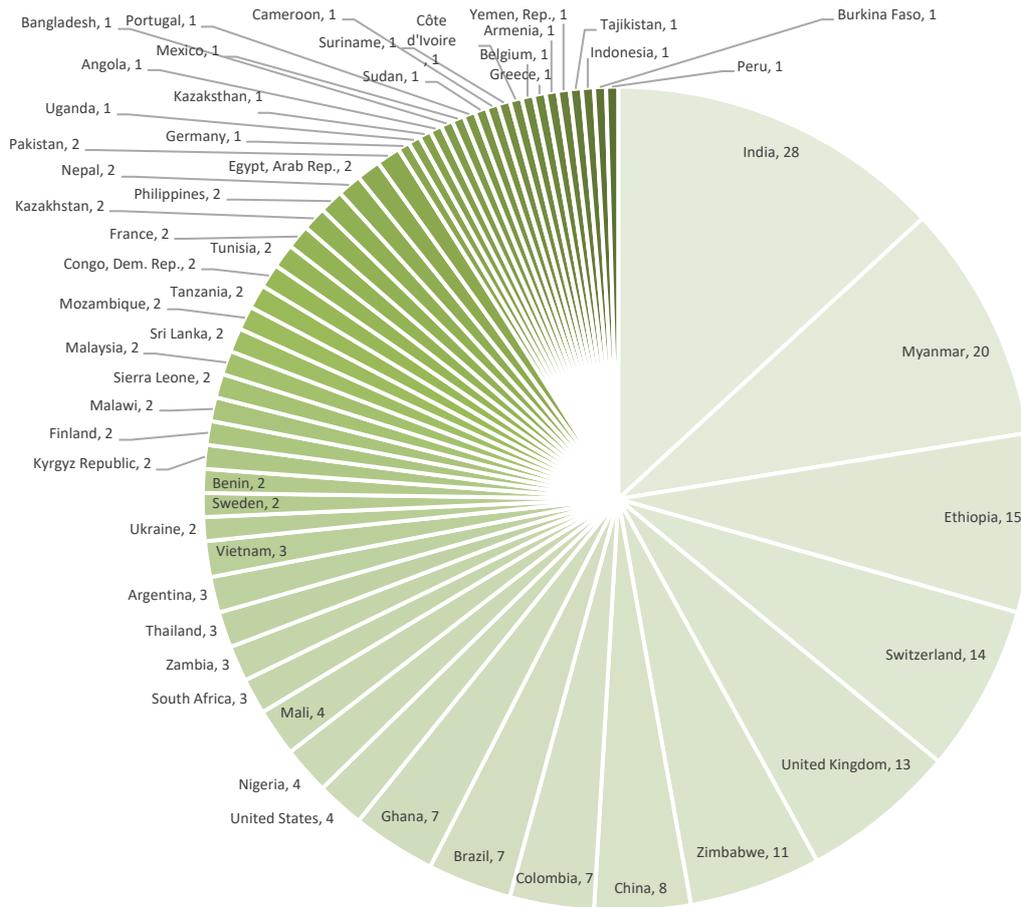


Figure 15. EQUITY: First author country representation, 2020

The distribution by WHO regional office of first authors of publications supported by TDR in 2020 is represented in the graph below.

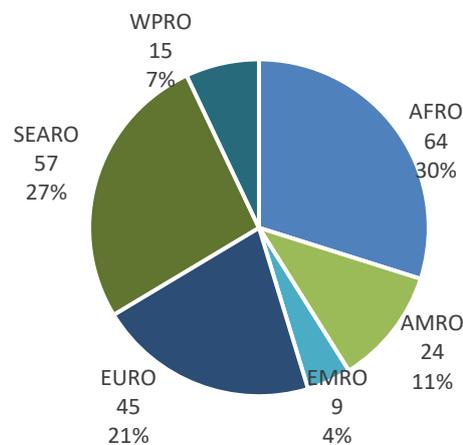


Figure 16. EQUITY: Distribution of first authors by WHO regional offices, 2020

The distribution of countries of last authors of publications supported by TDR in 2020 is shown below.

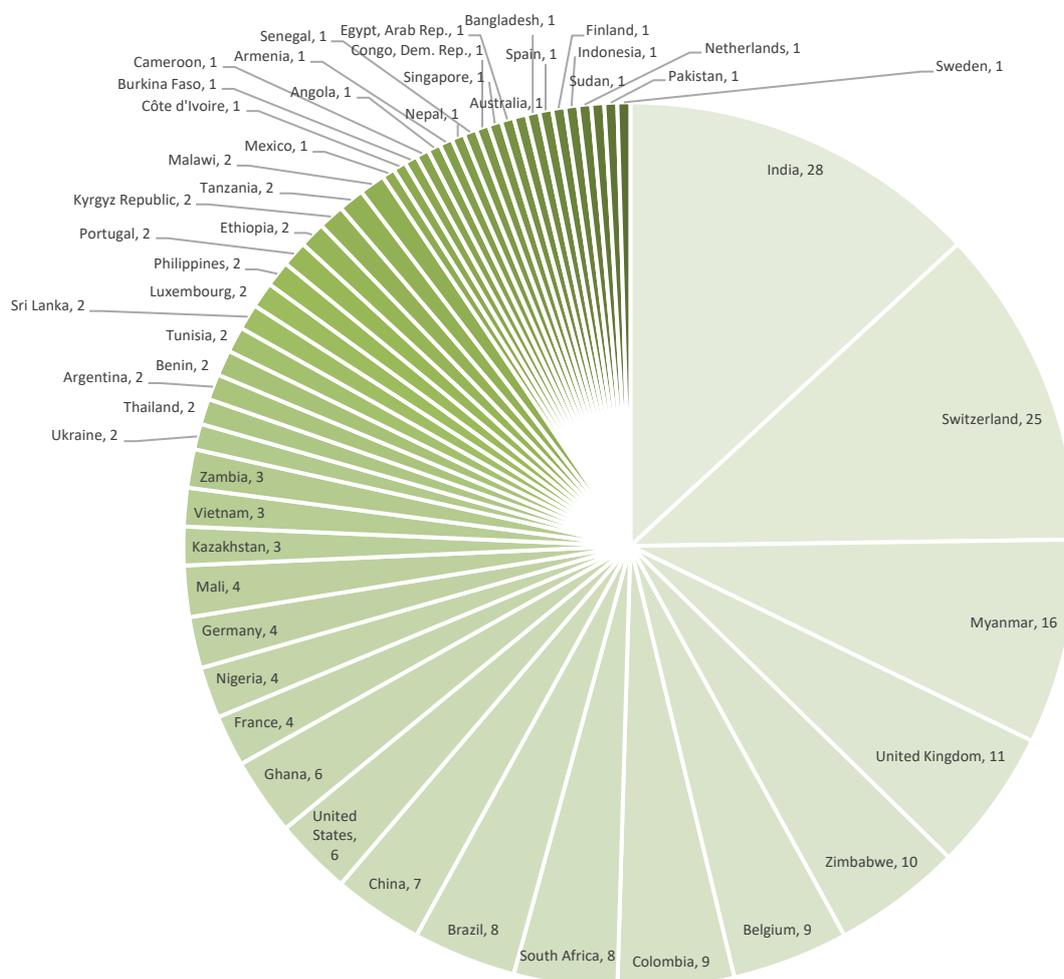


Figure 17. Distribution of last authors of publications by country, 2020

Indicator 13 - Number of peer-reviewed publications supported by TDR and percentage published in open/free access

The number of peer-reviewed publications supported by TDR in 2020 was 214.

A complete list of publications supported by TDR in 2020 is attached in Annex 1. It provides the names of the author(s), the publication title and the peer-reviewed journal in which it appears.

Key publications

- Fouque, F, Gross, K., Leung Zee, Boutsika, K. (2020) Introduction to a Landscape Analysis of Multisectoral Approaches for Prevention and Control of Infectious and Vector-Borne Diseases, *The Journal of Infectious Diseases*, 222 (Suppl. 8), 695–700.³³
- Halpaap BM, Tucker JD, Mathanga D, Juban N, Awor P, Saravia NG, Han L, de Villiers K, Kitamura M, Cuervo LG, Peeling R, Reeder JC. Social innovation in global health: sparking location action.

³³ See <https://pubmed.ncbi.nlm.nih.gov/33119097/>

Lancet Glob Health. 2020 May; 8(5):e633-e634. doi: 10.1016/S2214-109X(20)30070-X. PMID: 32353305³⁴

- Liu, E., Iwelunmor, J., Gabagaya, G., Anyasi, H., Leyton, A., Goraleski, K. A., Wei, S. F., del Barrio, M. O., Olaleye, A., Launois, P. & Tucker, J. D. (2020) 'When she rises, we all rise': a crowdsourcing challenge to increase women's participation in an infectious diseases research fellowship. *Bmc Infectious Diseases*, 20(1), 7. ³⁵
- Mabey D, Agler E, Amuasi JH, Hernandez L, Hollingsworth TD, Hotez PJ, Lammie PJ, Malecela MN, Matendecheo SH, Ottesen E, Phillips RO, Reeder JC, Landmann Szwarcwald C, Shott JP, Solomon AW, Steer A, Swaminathan S. Towards a comprehensive research and development plan to support the control, elimination and eradication of neglected tropical diseases. *Trans.R.Soc.Trop.Med.Hyg.*, 115, 196-199, 2020³⁶
- van Niekerk, L., Ongkeko, A., Hounsell, R. A., Msiska, B. K., Mathanga, D. P., Mothe, J., Juban, N., Awor, P. & Balabanova, D. (2020b) Crowdsourcing to identify social innovation initiatives in health in low- and middle-income countries. *Infectious Diseases of Poverty*, 9(1), 12.³⁷
- Zachariah R, Maher D, Aseffa A, Vahedi M, Launois P, Khogali M, Aslanyan G, Reeder JC. Strengthening the core health research capacity of national health systems helps build country resilience to epidemics: a cross-sectional survey. *F1000Research* 2020 ³⁸

Open access

In 2020, 93% of TDR-supported publications were published in open or free access, identical to 2019. The trend points towards getting closer to 100% open access in a few years from now.

In order to promote and enhance the translation of research into practice, free access to research publications is key. To measure the extent to which TDR-supported publications responded to the open access concept, the percentage of publications electronically accessible (full text) via Web of Science were counted. In general, users can access articles free of charge either because they are published in an open access journal (such as PLoS or BioMed Central) or they are stored in a free access repository (such as PubMed Central) at the request of one of the research funders. Other scenarios that guarantee free access are TDR-funded journal supplements or special agreements between authors and publishers to make access to specific articles free of charge for the reader.

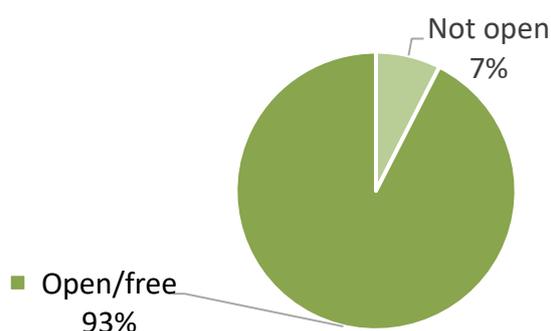


Figure 18. EQUITY: Proportion of publications in open/free access, 2020

³⁴ See <https://pubmed.ncbi.nlm.nih.gov/32353305/>

³⁵ See <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-020-05433-5>

³⁶ See <https://minerva-access.unimelb.edu.au/bitstream/handle/11343/272080/PMC7842110.pdf>

³⁷ See <https://idjournal.biomedcentral.com/articles/10.1186/s40249-020-00751-x>

³⁸ See <https://f1000research.com/articles/9-583>

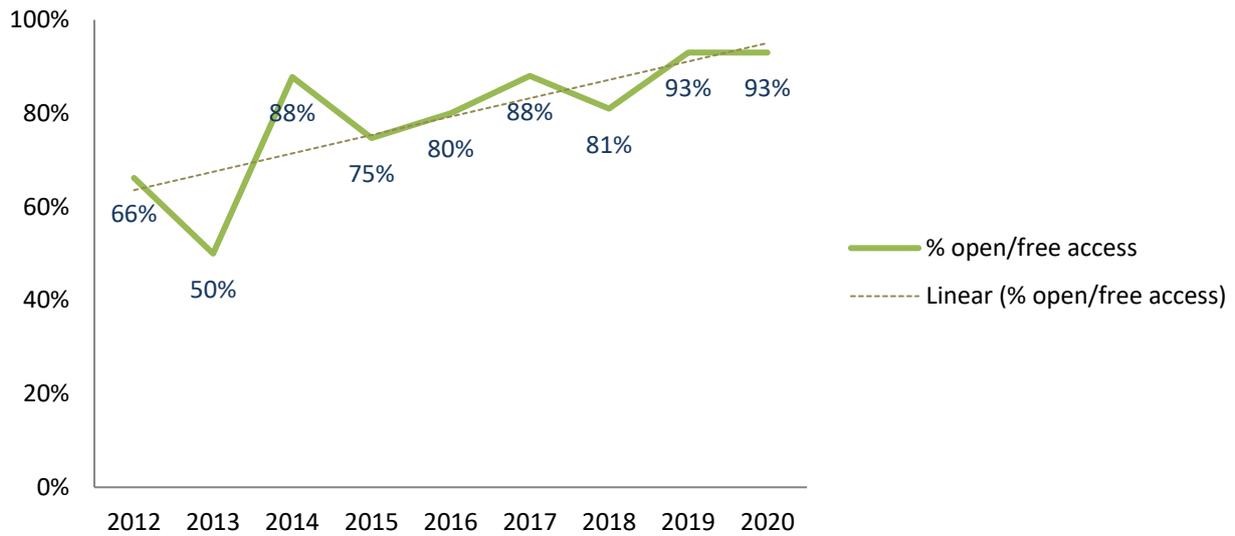


Figure 19. EQUITY: Proportion of publications in open/free access, yearly progress 2012 to 2020

If we are to achieve 100% open/free publications, some obstacles need to be dealt with. A quick analysis shows that almost all non-open publications are from DEC authors, which may mean that there is a financial barrier in having their publications published in open access. An in-depth analysis is needed to identify incentives and means to support open/free access publications in such cases.

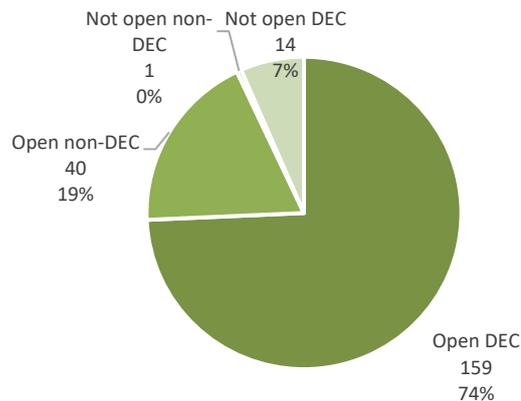


Figure 20. EQUITY: Proportion of publications in open/free access, by DEC/non-DEC status of first author, 2020

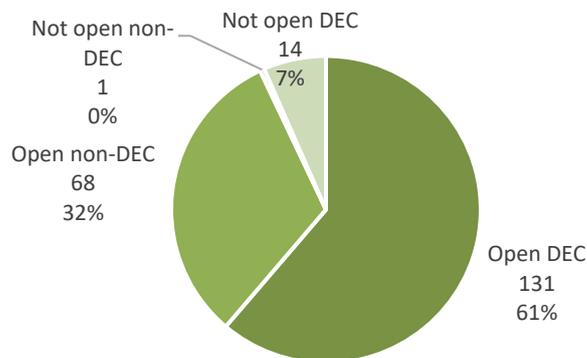


Figure 21. EQUITY: Proportion of publications in open/free access, by DEC/ non-DEC status of last author, 2020

Indicator 14 - Proportion of women among grantees/contract recipients (total count and total amount)

In 2020, 49% of the amount allocated to contracts or grants was awarded to women (approximately US\$ 4.4 million), an increase from 47% in 2019 and more than double the proportion in 2012 (22%). Of these, the proportion awarded to women remained high at 46%, compared to 40% in 2017. These measurements show a clear increase and confirm the continuing trend started in 2012, driven by the goal of bringing the proportion of women researchers as close as possible to 50%. The average amount of a contract or grant was for the first time higher for women Principal Investigators or women institutional contacts than for men. As recommended by STAC in 2020, we are collecting grant and contract information retrospectively to analyse the data and identify potential factors that helped generate this trend.

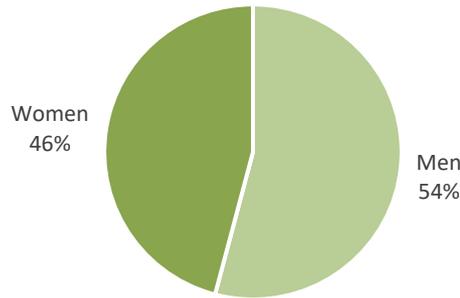


Figure 22. GENDER: Proportion of grants and contracts awarded to women (% count), 2020

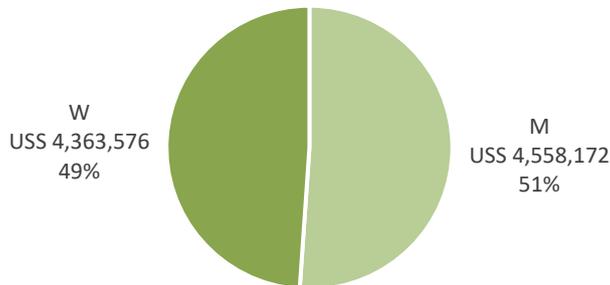


Figure 23. GENDER: Proportion of grants and contracts awarded to women (% amount), 2020

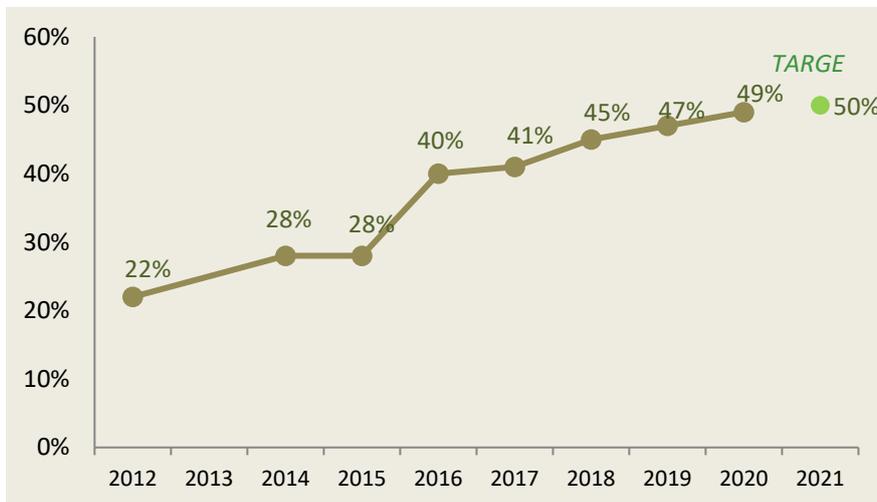


Figure 24. GENDER: Proportion of grants and contracts awarded to women, yearly progress 2012 to 2020 (% amount)

Figure 25 shows the ratio of men and women among grantees from DECs and non-DECs.

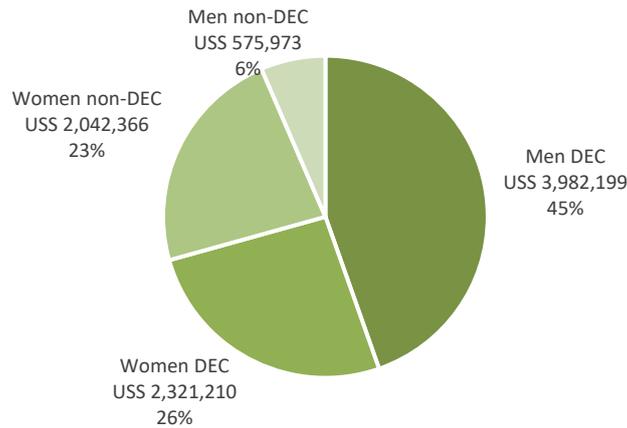


Figure 25. GENDER: Proportion and value of grants and contracts awarded to men and women in DECs vs non DECs (% amount), 2020

Indicator 15 - Proportion of women on TDR external advisory committees

In 2020, women made up 60% of the membership of TDR’s external advisory committees. This new record reflects our continuing drive to involve women in higher advisory roles, and the general effort by TDR towards gender equity. This dwarfs the proportion of women initially measured in 2012, which stood at only 28%.

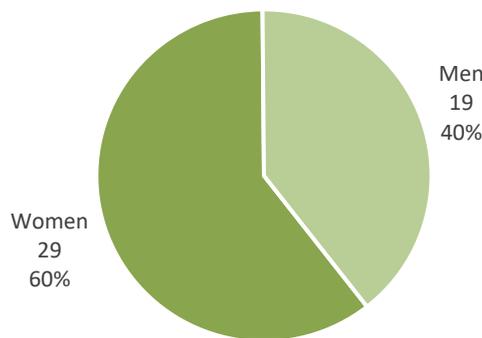


Figure 26. EQUITY: Gender distribution of external expert advisers, 2020

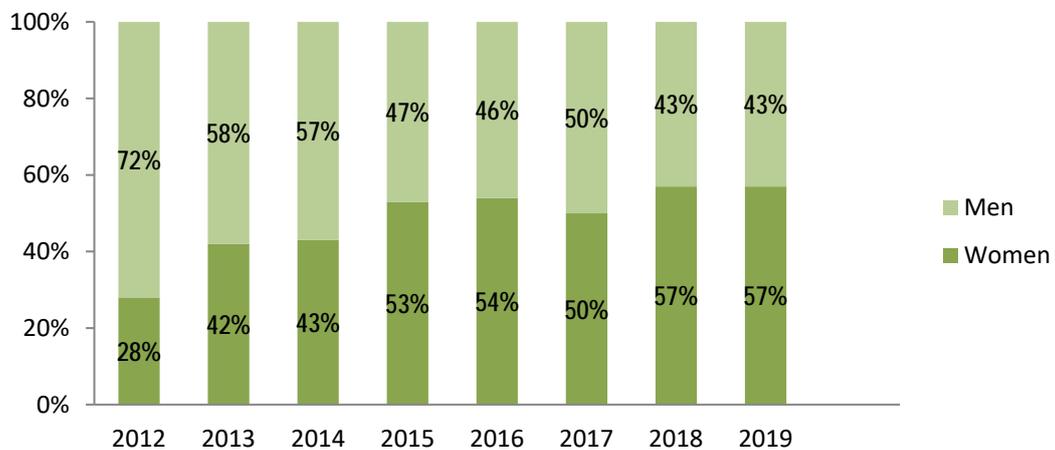


Figure 27. EQUITY: Yearly gender distribution of external expert advisers, 2012 to 2020

Indicator 16 - Proportion of women authors of peer-reviewed publications supported by TDR (first author, last author)

In 2020, 45% of first authors of TDR-supported publications were women. This result is higher than in 2019 (43%). The proportion has improved compared to the baseline (2017, 38%).

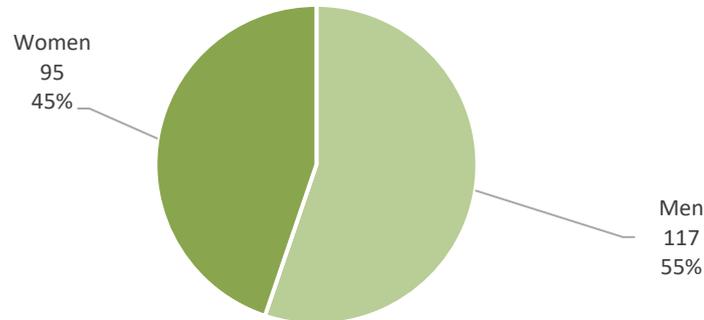


Figure 28. TDR-SUPPORTED PUBLICATIONS: Gender distribution of first authors, 2020

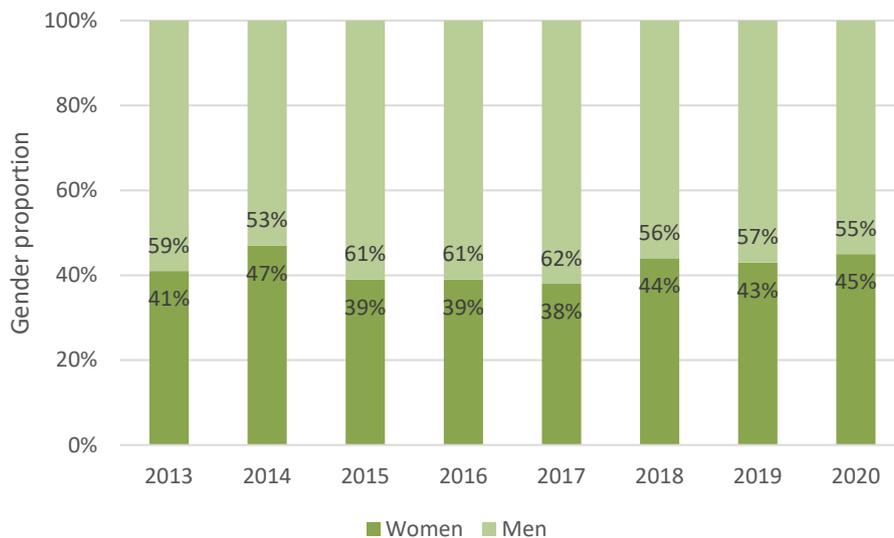


Figure 29. TDR-SUPPORTED PUBLICATIONS: Gender distribution of first authors year-to-year, 2013 to 2020

In 2020, 30% of last authors of TDR-supported publications were women, higher than in 2019 (28%). Compared to the baseline measured in 2017 (24%), the proportion has improved.

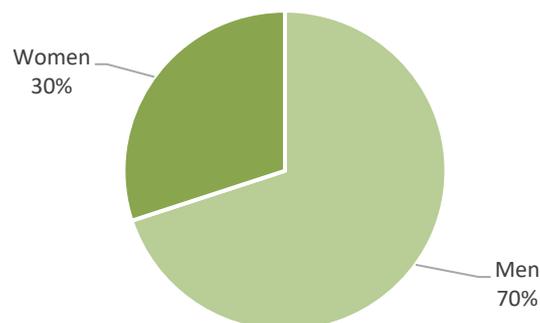


Figure 30. TDR-SUPPORTED PUBLICATIONS: Gender distribution of last authors, 2020

At the request of STAC, we also measured the gender distribution of corresponding authors in 2020. The analysis shows that 41% of corresponding authors of TDR-supported publications were women, a proportion similar to that in previous years.

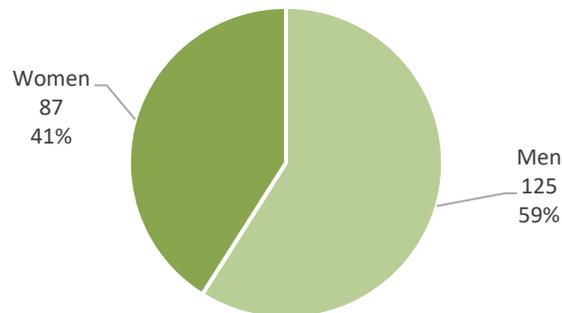


Figure 31. TDR-SUPPORTED PUBLICATIONS: Gender distribution of corresponding authors, 2020

Indicator 17 - Number and proportion of peer-reviewed publications explicitly considering gender and women issues, vulnerable groups or people with disabilities

Of the total number of peer-reviewed publications supported by TDR in 2020, we identified:

- 31 articles (14%) that addressed the topic of gender or sex in health, from women's global health leadership in LMICs to better engaging women researchers, to antenatal, pregnancy and postnatal health care, to gender-norms focused health interventions, men having sex with men, etc.
- 150 articles (70%) related to research or capacity strengthening in the context of vulnerable populations (pregnant women, neonates, severe chronic diseases such as leprosy, cancer, multidrug-resistant tuberculosis or HIV/TB coinfection, patients with catastrophic healthcare costs, patients in palliative care, migrants and asylum seekers, prison inmates, children under five, adolescents, patients facing stigma, conflict-affected populations, patients with severe mental afflictions, etc.)
- 19 publications (9%) that address populations with disabilities (people suffering from river blindness, leprosy, severe leishmaniasis, lymphatic filariasis, palliative care, severe tuberculosis, trachoma, severely malnourished children, late-stage cancer, etc.).

4.2 Effective multisectoral partnerships

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
18. Resources leveraged as direct contributions (co-funding, services or in-kind) to TDR projects (examples)	\$ 1:1 (\$ TDR : \$ partners) People 1:30 (TDR : in the field)	< \$ 2:1	To be reported at biennium end

Indicator 18 - Resources leveraged as direct contributions (co-funding, services or in-kind) to TDR projects (examples)

To be measured at the end of the biennium.

4.3 Value for money

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
19. Evidence demonstrating value-for-money, cost savings and/or enhanced efficiency or effectiveness	N/A	N/A	To be reported at biennium end

Indicator 19 - Evidence demonstrating value-for-money, cost savings and/or enhanced efficiency or effectiveness

To be measured at the end of the biennium.

4.4 Quality of work

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
20. Proportion of project reports evaluated as satisfactory by external advisory committees	100%	>80%	To be reported at biennium end

Indicator 20 - Proportion of project reports evaluated as satisfactory by external advisory committees

To be measured at the end of the biennium.

4.5 Sustainability of outcomes

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
21. Number of effective public health tools and strategies developed which have been in use for at least two years	0	40	To be reported at biennium end

Indicator 21 - Number of effective public health tools and strategies developed which have been in use for at least two years

To be measured at the end of the biennium.

5. Management performance

5.1 Effective resource mobilization

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2020)
22. Percentage of approved biennial budget successfully funded	87.9% (US\$ 39.5/45M)	≥100%	To be reported at biennium end
23. Percentage of income received from multi-year, unconditional donor agreements	17.3% (US\$ 6.8M/39.5 M)	70%	To be reported at biennium end

Indicator 22 - Percentage of approved biennial budget successfully funded

To be measured at the end of the biennium.

Indicator 23 - Percentage of income received from multi-year, unconditional donor agreements

To be measured at the end of the biennium.

5.2 Effective management

Key performance indicators	Baseline (2017)	Target (2023)	Progress (contrib. 2019)
24. Percentage of staff workplans and performance reviews (including personal development plan) completed on time	89%	≥90%	100%
25. Proportion of expected results on track	89%	≥80%	96%
26. Proportion of significant risk management action plans that are on track	100%	≥80%	95%

Indicator 24 - Percentage of staff workplans and performance reviews (including personal development plan) completed on time

In 2020, all staff workplans and performance reviews were done on time.

Indicator 25 - Proportion of expected results on track

At 31 December 2020, 22 of the 23 expected results in TDR's portfolio showed their activities as being on track, while one was delayed (restrictions in funding by the Government of the United States of America to WHO). Due to various situations, such as the COVID-19 pandemic that required a lot of effort from TDR grantees in the field and also imposed travel restrictions, some activities had to be postponed, others were moved to online, and others may need to be replanned or redesigned. The situation will become clearer as we move into 2021.

The summary status of expected results at 31 December 2020 was:

- 22 ongoing on track
- 1 with delays

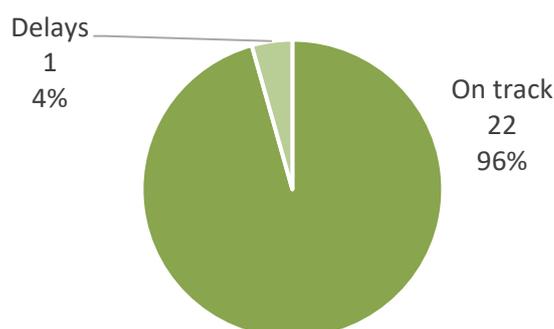


Figure 32. Status of expected results as at 31 December 2020

Indicator 26 - Proportion of significant risk management action plans that are on track

At the end of 2020, for the ten open Programme-level risks, 19 action items were on track and one was on hold. Five action items were completed in 2020 and have been closed.

6. Lessons learnt

Accountability needs to come with being given full responsibility: The R&D demonstration projects

In 2013, the World Health Assembly called for the implementation of a few health research and development demonstration projects to address identified gaps that disproportionately affect developing countries, and WHO identified TDR – supported by its strong governance and management systems – as best positioned to administer a special pooled fund for research and development. A WHO-convened ad hoc committee of external experts selected six projects to be funded over the following years, and then provided scientific and technical oversight of the demo projects, including a review of budgets.

Among those projects, the majority were finalized on time or with small delays. Following WHO's 2017 announcement that the R&D pooled fund would be closed, the ad hoc committee no longer met. TDR, however, was still responsible for oversight of technical and financial implementation of the demonstration projects fund, and this created a burden on the TDR secretariat. One of the projects continued well into 2018 and, due to changes in the structure of the grantee institutions, there were continued delays in reporting. We learned from this experience that being asked to host and administer a fund without being given full responsibility for all aspects (technical and financial) related to the management of the projects funded, does not alleviate being held accountable, and there is a risk that we do not have all the means to drive the project to proper closure.

Turning the COVID-19 pandemic risk into opportunity

Thanks to a strong portfolio aligned with its strategy, TDR was able to pursue its strategic priorities despite the COVID-19 pandemic, while adapting to the field conditions imposed by the emerging restrictions (travel, meetings, human resources allocation in the field, etc.). Not only did we not drop TDR's strategic priorities, but rather we turned the challenges into opportunities, by developing online training platforms in country and regional hubs, holding virtual meetings both for operations and governance, and reorienting savings on travel to these novel online tools. At the same time, the pandemic effort engaged hundreds of trainees and grantees previously trained by TDR, who used their skills in various areas of pandemic control.

Thanks to the Strategic Development Funds being available, TDR was able to quickly conduct projects in countries to identify their main challenges and support the identification of solutions to address problems caused by the pandemic to the national disease control programmes and to increase resilience.

Implementing eTDR: a web-based, portfolio, project and grant management system

The design of a project and grant management solution to replace multiple, disparate information systems and databases started in 2009 to respond to stringent needs of project management, donor reporting and portfolio management. After an initial disappointing outcome, mostly due to a lack of firm support and commitment from some areas of WHO's Information Management Team (IMT), we managed to secure a good team, composed of a very committed unit head in WHO IMT, a consultant with excellent knowledge of TDR systems and project management, and internal TDR champions. This team handled user requirements gathering, a lengthy but particularly useful exercise, which informed in detail the competitive bidding step, leading to the selection of the best adapted and financially accessible solution. While development of the system encountered the great challenge of teleworking during the pandemic, between two continents, support from WHO IMT colleagues and the external consultant, as well as from our governing bodies who allocated sufficient resources, allowed us to pilot and eventually launch the eTDR system in 2020. Since then, all TDR projects are captured in the eTDR system, making it easy to track calls for proposals, online applications, review and selection processes, as well as managing grants online with the Principal Investigator's team, on a web-based platform, and offering a transparent tool for planning and reporting at strategic and operational levels.

7. Annexes

Annex 1. List of TDR-supported peer-reviewed publications 2020

(Retrieved from Web of Science on 31 Dec 2020; the list also includes SORT IT publications not indexed by the Web of Science, and publications from F1000 TDR platform not indexed by Web of Science)

1. Abate E, Reeder JC. Neglected Tropical Diseases: responding to calls for action from the front lines in Ethiopia. *JIDC*, 14 :1S-2S, 2020.
2. Abdela, S. G., Diro, E., Zewdu, F. T., Berhe, F. T., Yeshaneh, W. E., Tamirat, K. S., Tweya, H., Timire, C. & van Griensven, J. (2020a) Delayed diagnosis and ongoing transmission of leprosy in the post-elimination era in Boru Meda hospital, Ethiopia. *Journal of Infection in Developing Countries*, 14(6), 10S-15S.
3. Abdela, S. G., Diro, E., Zewdu, F. T., Berhe, F. T., Yeshaneh, W. E., Tamirat, K. S., Tweya, H., Timire, C. & van Griensven, J. (2020b) Looking for NTDs in the skin; an entry door for offering patient centered holistic care. *Journal of Infection in Developing Countries*, 14(6), 16S-21S.
4. Abdul-Ghani, R., Fouque, F., Mahdy, M.A.K., Zhong, Q., Al-Eryani, S.M.A., Alkwri, A., Beier, J.C. (2020) Multisectoral Approach to Address Chikungunya Outbreaks Driven by Human Mobility: A Systematic Review and Meta-Analysis, *The Journal of Infectious Diseases*, 222 (Suppl 8), 709–716.
5. Abio, A., Wilburn, J. K., Shaikh, M. A. & Wilson, M. L. (2020) School Violence Among a Nationally Representative Sample of Adolescents in Chile. *Frontiers in Public Health*, 8, 7.
6. Abong, R. A., Amambo, G. N., Ndongmo, P. W. C., Njouendou, A. J., Manuel, R., Beng, A. A., Esum, M. E., Deribe, K., Fru-Cho, J., Fombad, F. F., Nji, T. M., Enyong, P. I., Poole, C. B., Pfarr, K., Hoerauf, A., Carlow, C. K. S. & Wanji, S. (2020) Differential susceptibility of *Onchocerca volvulus* microfilaria to ivermectin in two areas of contrasting history of mass drug administration in Cameroon: relevance of microscopy and molecular techniques for the monitoring of skin microfilarial repopulation within six months of direct observed treatment. *Bmc Infectious Diseases*, 20(1), 17.
7. Addisu, A., Zeleke, A. J., Bayih, A. G., Tweya, H., Timire, C., Techilo, W., Kamau, E. M., Vogt, F. & Verdonck, K. (2020) Trends and seasonal patterns in intestinal parasites diagnosed in primary health facilities in Northwest Ethiopia. *Journal of Infection in Developing Countries*, 14(6), 58-65.
8. Adhikari, S. R., Sapkota, V. P., Thapa, A. K. & Acharya, Y. (2019) Understanding challenges to malaria elimination in Nepal: a qualitative study with an embedded capacity-building exercise. *Malaria Journal*, 18(1), 10.
9. Akamike, I. C., Okedo-Alex, I. N., Agu, A. P., Alo, C. & Ogbonnaya, L. U. (2020) Knowledge and adherence to isoniazid preventive therapy among people living with HIV in multilevel health facilities in South-East, Nigeria: baseline findings from a quasi-experimental study. *Pan African Medical Journal*, 36, 10.
10. Akuffo, H., Soop, T. Funding social innovation for health with research funds for development. *Infect Dis Poverty* 9, 120 (2020). <https://doi.org/10.1186/s40249-020-00744-w>
11. Althaus, T., Lubell, Y., Maro, V. P., Mmbaga, B. T., Lwezaula, B., Halleux, C., Biggs, H. M., Galloway, R. L., Stoddard, R. A., Perniciaro, J. L., Nicholson, W. L., Doyle, K., Olliaro, P., Crump, J. A. & Rubach, M. P. (2020) Sensitivity of C-reactive protein for the identification of patients with laboratory-confirmed bacterial infections in northern Tanzania. *Tropical Medicine & International Health*, 25(3), 291-300.
12. Amoakoh-Coleman, M., Arhinful, D. K., Klipstein-Grobusch, K., Ansah, E. K. & Koram, K. A. (2020) Coverage of intermittent preventive treatment of malaria in pregnancy (IPTp) influences delivery outcomes among women with obstetric referrals at the district level in Ghana. *Malaria Journal*, 19(1), 13.
13. Angelo, J. R., Fuller, T. L., Leandro, B. B. S., Praca, H. L. F., Marques, R. D., Ferreira, J. M. C., Pupe, C. C. B., Perez, O. C., Nielsen-Saines, K., Nascimento, O. J. M. & Sabroza, P. C. (2020) Neurological complications associated with emerging viruses in Brazil. *International Journal of Gynecology & Obstetrics*, 148, 70-75.
14. Anh LTN, Kumar AMV, Ramaswamy G, Htun T, Thanh Hoang Thi T, Hoai Nguyen G, Quelpio M, Gebhard A, Nguyen HB, Nguyen NV. High Levels of Treatment Success and Zero Relapse in Multidrug-Resistant Tuberculosis Patients Receiving a Levofloxacin-Based Shorter Treatment Regimen in Vietnam. *Tropical Medicine and Infectious Disease*. 2020;5(1):43.

15. Antonio, C.A.T., Bermudez, A.N.C., Cochon, K.L., Reyes, M.S.G.L., Torres, C.D.H., Liao, S.A.S.P., Ortega, D.J.N., Silang, A.V.M.C., Uezono, D.R., Roxas, E.A., Salamat, M.S.S. (2020) Recommendations for Intersectoral Collaboration for the Prevention and Control of Vector-Borne Diseases: Results From a Modified Delphi Process, *The Journal of Infectious Diseases*, 222 (Suppl 8), 726–731.
16. Arega, B., Diro, E., Zewude, T., Getahun, T., Agunie, A., Owiti, P., Senkoro, M. & van Henten, S. (2020) High levels of scabies and malnutrition amongst orphans referred to a hospital in Addis Ababa, Ethiopia. *Journal of Infection in Developing Countries*, 14(6), 485-525.
17. Asfaw, M., Zolfo, M., Negussu, N., Tadesse, F., Tadele, T., Sisay, A., Seyum, D., Gezmu, T., Senkoro, M., Owiti, P. & Adriaensen, W. (2020) Towards the trachoma elimination target in the Southern region of Ethiopia: How well is the SAFE strategy being implemented? *Journal of Infection in Developing Countries*, 14(6), 35-+.
18. Atoyebi, S. M., Tchigossou, G. M., Akoton, R., Riveron, J. M., Irving, H., Weedall, G., Tossou, E., Djegbe, I., Oyewole, I. O., Bakare, A. A., Wondji, C. S. & Djouaka, R. (2020) Investigating the molecular basis of multiple insecticide resistance in a major malaria vector *Anopheles funestus* (sensu stricto) from Akaka-Remo, Ogun State, Nigeria. *Parasites & Vectors*, 13(1), 14.
19. Aung NHH, Soe KT, Kumar AMV, Saw S, Aung ST. What Are the Barriers for Uptake of Antiretroviral Therapy in HIV-Infected Tuberculosis Patients? A Mixed-Methods Study from Ayeyawady Region, Myanmar. *Tropical Medicine and Infectious Disease*. 2020;5(1):41.
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22. Ayiraveetil R, Sarkar S, Chinnakali P, Jeyashree K, Vijayageetha M, Thekkur P, Lakshminarayanan S, Knudsen S, Hochberg NS, Horsburgh CR, Ellner J, Roy G. Household food insecurity among patients with pulmonary tuberculosis and its associated factors in South India: A cross-sectional analysis. *BMJ Open*. 2020;10(2):e033798.
23. Azeze GA, Williams A, Tweya H, Obsa MS, Mokonnnon TM, Kanche ZZ, Fite RO, Harries AD. Changing prevalence and factors associated with female genital mutilation in Ethiopia: Data from the 2000, 2005 and 2016 national demographic health surveys. *PLOS ONE*. 2020;15(9):e0238495.
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Annex 2. Progress on the TDR's current portfolio of expected results Status update as at 31 December 2020

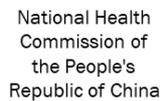
<i>ER Title</i>	<i>ER Status 31 Dec 2020</i>
Country preparedness for disease outbreaks	On track
Country resilience to the threat of drug-resistant infections	On track
Directions for development and accelerated access to new tools and strategies	On track
Maximized utilization of data for public health decision making	On track
Maximized utilisation of safety information for public health decision making	On track
Strategies to achieve and sustain disease elimination	On track
Optimized approaches for effective delivery and impact assessment of public health interventions	On track
Population health vulnerabilities to VBDs: increasing resilience under climate change conditions	On track
Advancing social innovation in health care delivery through research, capacity strengthening and advocacy	On track
Multi-Sectoral Approach (MSA) for Prevention and Control of Malaria and Emerging Arboviral Diseases	On track
Urban health interventions for the prevention and control of vector-borne and other infectious diseases of poverty, and new vector control technologies to prevent and control emerging arboviruses	On track
Testing of innovative strategies for vector control	Delayed
Strategies to promote gender-responsive health interventions on prevention and control of VBDs and other infectious diseases of poverty	On track
Strategic support to WHO regional activities: the regional training centres	On track
WHO Regional Office collaboration and small grants	On track
Targeted research training grants in low-and middle-income countries	On track
UNDP Structured capacity Building in Implementation Research to improve access and delivery of health technologies in LMICs	On track
Advanced training in Clinical Product Development (Career Development Fellowship grants)	On track
Knowledge Management shaping the research agenda	On track
Capacity strengthening to bring research evidence into policy (R&D Funding)	On track
Collaborative networks and Global Health Initiatives (GHIs)	On track
TDR Global - the community of former trainees, grantees and experts	On track

Annex 3. TDR 2020 revenue

Contributor	
Core contributions	Amount (US\$)
Sweden	3 845 004
United Kingdom of Great Britain and Northern Ireland	3 807 268
Switzerland	1 821 192
World Health Organization	1 800 000
Germany	1 361 036
Luxembourg	1 294 118
Belgium	707 547
Norway	339 482
Spain	119 474
China ¹	55 000
India	55 000
Thailand	48 123
Malaysia	25 000
Mexico	10 000
Miscellaneous	806
Subtotal	15 289 050
Contributors providing specific project funding	Amount (US\$)
National Institute of Health Research (NIHR), United Kingdom	2 664 090
Bill & Melinda Gates Foundation	1 200 000
Sweden	836 737
United Nations Development Programme (UNDP)	650 000
World Health Organization	502 465
Luxembourg	400 813
Switzerland	173 342
Medicines Development for Global Health Limited (MDGH)	135 498
University of Oxford	67 122
Subtotal	6 630 066
Total contributions	21 919 116

¹ The 2020 contribution from the Government of the People's Republic of China will be reported in the certified financial report in 2021.

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* Listed in order of level of contribution