TDR Annual Report 2020

Building the science of solutions
Our Vision
The health and well-being of people burdened by infectious diseases of poverty is improved through research and innovation.

Our Mission
To support effective and innovative global health research, through strengthening the research capacity of disease-affected countries, and promoting the translation of evidence into interventions that reduce the burden of infectious diseases and build resilience in the most vulnerable populations.

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Introduction

Dr John Reeder
TDR Director

The year 2020 was unlike any we have ever experienced. The COVID-19 pandemic has had a profound impact on all of us and posed unprecedented challenges to the work of TDR. Despite the difficulties, I am proud to have been part of an extraordinary collective effort that reflects the dedication and passion of our staff and partners, working to improve the health of people burdened by infectious diseases of poverty.

In this report, we highlight many positive stories that have emerged in the background of the global crisis. In particular, we have found that our long-term investments in strengthening health research capacity in low- and middle-income countries have helped build resilience to respond to crises such as the current pandemic.

A survey we conducted in June found that the skills acquired through three TDR research training programmes have allowed hundreds of scientists to contribute to both research and frontline efforts tackling COVID-19. This ability to transfer the skills learnt in the training programmes is critical to sustaining resilient health research systems. The survey results demonstrate the value of investing in people, and in research training, ahead of emergencies. We now have the right people in the right place at the right time.

While the pandemic has presented challenges to the research activities we are supporting, they have largely been able to move forward thanks to creative solutions and flexibility to overcome those challenges. Such persistence has helped mitigate the impact of the pandemic on efforts to tackle tuberculosis, malaria and neglected tropical diseases.

The pandemic has also pushed us to change how we work. The inability to convene in person has highlighted the importance of electronic and digital tools, such as virtual platforms for research training workshops, interactive digital toolkits and training videos. Taking advantage of these tools also reduces our carbon footprint, which presents a strong case for continuing this way of working even after the pandemic subsides.

We thank all of our donors for their continued confidence and support for research to combat infectious diseases of poverty and to ensure that they are not overlooked during this critical time. We would also like to express our deep appreciation to all of our partners in the field continuing to put their science into action to solve the pressing health problems in their countries.

Despite the difficulties, I am proud to have been part of an extraordinary collective effort that reflects the dedication and passion of our staff and partners, working to improve the health of people burdened by infectious diseases of poverty.

Dr John Reeder,
Director, TDR
As we think about the post-pandemic world and where to invest, I think it’s clear that we need to invest more in research capacity, in research ethics, in everything that we need to be in place before a pandemic strikes.

Dr Soumya Swaminathan
TDR Special Programme Coordinator
Chief Scientist, World Health Organization

Having been a staff member of TDR and having followed the programme very closely over the years, I am delighted that TDR is part of WHO’s Science Division, alongside our other research programmes.

Given the ongoing COVID-19 pandemic, I believe there has been a fundamental shift in how science and research are perceived globally. This presents an opportunity as we seek to address the gaps in capacity to respond to health emergencies, the gaps in health infrastructure, and gaps in research and development, which have been made very clear. Now more than ever, there is a need to generate robust scientific evidence for policy making and decision making.

As we think about the post-pandemic world and where to invest, I think it’s clear that we need to invest more in research capacity, in research ethics, in everything that we need to be in place before a pandemic strikes. Because once a pandemic is spreading, it’s too late to be thinking about those gaps and trying to fill them.

Because of its long history and vast experience in strengthening research capacity in low- and middle-income countries through its extensive research and training networks, TDR is taking a leading role in this regard, as documented in this annual report.

We have seen how TDR’s training programmes are now paying dividends as researchers tackling various infectious diseases are now pivoting to COVID-19. And while COVID-19 dominates the headlines, TDR is also helping to ensure that efforts to tackle other infectious diseases such as tuberculosis, malaria and neglected tropical diseases are sustained.

I congratulate TDR on the many achievements highlighted in this report and look forward to seeing continued progress across the programme.
Introduction

COVID-19 is a tremendous global threat, but we have to remember that other infectious diseases disproportionately affecting vulnerable populations continue to kill millions of people each year.

Dr Vic Arendt
TDR Joint Coordinating Board Chair

The COVID-19 pandemic has brought health systems in most countries under extreme stress. Over the past year, TDR has shown how effectively it is stepping up to contribute to the fight against COVID-19 in several ways.

A number of TDR scientists have been assisting WHO in activities such as preparing COVID-19 research protocols, running good clinical practice training courses for research teams in countries, and reviewing the vast literature on COVID-19 to constitute the reference collection of relevant articles, among many other activities.

Scientists supported by TDR and trained in programmes such as the Structured Operational Research and Training Initiative (SORT IT), Postgraduate Training Scheme and Clinical Research and Development Fellowship are also participating in COVID-19 activities in their countries in many different aspects. This shows that the acquisition of generic capacities in implementation research for health can be directly applied to new situations and emerging diseases.

Meanwhile, COVID-19 is a tremendous global threat, but we have to remember that other infectious diseases disproportionately affecting vulnerable populations continue to kill millions of people each year. TDR's mission is to build research capacity in implementation research to fight all of these diseases, from malaria, tuberculosis and antimicrobial resistance to new conditions linked to climate change and the environment, population growth and other factors.

I strongly believe these TDR activities should continue to be supported and be expanded. The challenges are enormous, far beyond a single pathogen, and we need to ensure that global health and the values of humanity and the United Nations are upheld.

In addition to the research activities, all governance processes and engagements were carried out effectively in 2020, despite the challenges. I have also observed how TDR has adapted new ways of engaging with key stakeholders and ensuring continuity of governance oversight.

As Chair of the Joint Coordinating Board, I congratulate TDR on its many achievements in 2020 and thank all Board members and observers for their continued support to TDR and its far-reaching programme of work.
Our Contributors

TDR is able to conduct its work thanks to the commitment and support from a variety of funders. These include our long-term core contributors from national governments and international institutions, as well as designated funding for specific projects within our current priorities.

Core contributors providing overall Programme support in 2020*

Belgium

National Health Commission of the People’s Republic of China

Ministry of Health & Family Welfare India

Thailand

Ministry of Health Malaysia

Contributors who provided support to specific projects in 2020

*listed in order of level of contribution.
Opposite are highlights from 2020 that demonstrate the impact of research supported by TDR to improve the health and well-being of people burdened by infectious diseases of poverty. This body of research is leading to new solutions for implementation and improved access to existing health solutions. This is the result of TDR’s strategic priority areas of research for implementation, strengthening research capacity and global engagement acting in an integrated manner.
## 2020 Highlights

**Research for implementation**

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**Research training and COVID-19 response:**

- Almost 60% (411 of 699) of survey respondents who received TDR training have been involved in research on COVID-19. Almost 80% (315 of 411) of those involved are directly applying skills learned during TDR training to fight the pandemic.

**Adapting training programmes to the pandemic:**

- The seven universities participating in the postgraduate training scheme actively adopted virtual trainings to ensure continuation of the scheme.
- More than 3000 researchers participated in the Massive Open Online Course on Implementation Research (IR) in English, French and Spanish.

**New training partners**

- Institutions in Senegal and Malaysia have joined TDR’s global network of research training partners, filling a gap in French-speaking West Africa and strengthening activities in the WHO Western Pacific Region.

**TDR joins COVID-19 Clinical Research Coalition to contribute to data sharing agenda**

**Social Innovation in Health Initiative partners with WHO Health Emergencies Programme on community engagement package**

**Global engagement**

- 48 research grants awarded in the six WHO regions through small grants scheme
- TDR Global’s initiative on innovative financing for research leads to successful crowdfunding campaign
- A new intersectional gender research strategy launched to promote more inclusive research
Research for implementation

to reach vulnerable populations and accelerate progress towards universal health coverage

Building on more than 40 years of experience, we work with our network of researchers and public health practitioners in low- and middle-income countries (LMICs) to ensure that more scientific evidence is generated and translated into safe, effective, equitable and accessible health solutions for populations suffering from infectious diseases of poverty. This often means studying how interventions that work in clinical trials and pilot settings can be transferred to “real life” settings and scaled up at the national level.

We fund research that national and international programmes have identified as priorities for overcoming obstacles and bridging gaps on the path from innovation to implementation, access and health impact.

Over the years, TDR has established research networks and collaborations in low- and middle-income countries that in 2020 have played a key role in mitigating the impact of the COVID-19 pandemic on various disease control efforts. This experience has highlighted the benefits of long-term investments that have built capacities within research and public health communities and mechanisms in LMICs that can be activated to respond effectively in times of health emergencies.

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## 2020 Highlights

- **African research networks collaborate to mitigate the impact of COVID-19 on tuberculosis (TB) services**
- **New toolkit developed for evaluating the implementation and scale-up of digital technologies for TB care**
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- **Global directory of medical entomology courses launched to help build capacity to tackle vector-borne diseases**
- **New toolkit supports researchers to incorporate intersectional gender analysis into research**
- **Assessment finds high-quality evidence for universal health coverage generated by the Structured Operational Research and Training Initiative (SORT IT)**
- **Innovative virtual platform developed to overcome COVID-19 restrictions in research and training**

*Above: Kenya Snakebite Research and Intervention Centre data collector.*
Research for implementation of strategies to tackle tuberculosis

African research networks collaborate to mitigate the impact of COVID-19 on TB services

In 2015, 16 national TB programmes in West Africa established a TDR-supported West African Regional Network for TB control (WARN-TB) to boost TB research in the sub-region. Since then, TDR has been training and supporting the national TB programme teams to enhance research in close collaboration with the WHO Regional Office for Africa; the WHO Global TB Programme (GTB); the West African Health Organization; the Global Fund to Fight AIDS, Tuberculosis & Malaria (the Global Fund); the International Union Against Tuberculosis and Lung Disease (The Union); the Damien Foundation; and European and African universities and research institutions.

The Central African Regional Network for TB control (CARN-TB) with 11 countries replicates and builds on the experience of WARN-TB. The secretariat for both networks is hosted by the National TB Programme of Benin.

The COVID-19 pandemic has strengthened ties between the national TB programmes (NTPs) participating in WARN-TB and CARN-TB. In early 2020, learning from the disruption caused by the Ebola epidemics, several NTPs identified the need to develop a consistent regional response to mitigate the impact of the COVID-19 pandemic on TB control in West and Central Africa.

Led by the NTP of Benin (secretariat for WARN-TB/CARN-TB) and TDR, regional webinars were conducted every two weeks from April to July 2020, and every month since then to give NTP coordinators and their staff the opportunity to discuss their challenges and share their solutions. Support is being provided remotely by the secretariat and by the strongest countries to the weakest to develop contingency plans (shared on the website of the secretariat) to minimize the impact of COVID-19 on TB services.

A situation analysis conducted in early April showed varying levels of disruption to TB services. With the involvement of the Global Drug Facility, drug procurement issues were discussed to avoid stock-out for the countries at risk.

These regional webinars also provide a forum for the Global Fund, the Stop TB Partnership and GTB to communicate various TB programmatic recommendations and discuss their implementation in the context of the COVID-19 pandemic.

Support for implementation research to mitigate the impact of COVID-19 on TB services

In addition, a research project funded through TDR’s Strategic Development Fund, with co-funding from and collaboration with the Access and Delivery Partnership (ADP), Damien Foundation, GTB and The Union was initiated in April 2020. This project aims to support NTPs throughout West and Central Africa to conduct implementation research on strategies to mitigate the impact of COVID-19 on TB control efforts.
In May 2020, a call for letters of interest was distributed throughout the WARN-TB and CARN-TB networks, resulting in 20 submissions from NTPs and their research partners in the region. Following a competitive evaluation, 11 submissions were selected. The selected proposals are detailed below.

**Figure: Overview of implementation research projects being conducted to mitigate the impact of COVID-19 on TB programmes.**

- **Mauritania**
  - Implementing and evaluating new community-based intervention with using COVID-19 investigations to increase based screening and testing of presumptive TB cases.

- **Senegal**
  - Evaluating the effectiveness of Teleconsultation strategies as mitigating measures of the impact of COVID-19 on TB care services.

- **Guinea**

- **Burkina Faso**
  - Evaluating the impact of COVID-19 on TB care seeking.

- **Cameroon, Cote d’Ivoire, Niger and Chad**
  - Evaluating the effectiveness of community-based TB treatment compared with treatment in health facilities.

- **Senegal**
  - Evaluating the effectiveness of Teleconsultation strategies as mitigating measures of the impact of COVID-19 on TB care services.

- **Togo**
  - Enhancing community engagement for mitigating the impact of COVID-19 on TB continuum of care.

- **Burundi**
  - Implementing a suite of innovative strategies to ensure the continuity of TB care services in the context of COVID-19.

Ongoing technical support and mentorship are being provided to grantees during the research period by TDR, ADP, the Union and Damien Foundation, with studies expected to be finalized by mid-2021.
The toolkit and the training course will help countries to mount more effective interventions and to contribute to global policy at this critical juncture when TB practitioners face the added challenge of COVID-19.

Dr Tereza Kasaeva, Director, WHO Global TB Programme

Evaluating the implementation and scale-up of digital technologies for TB care

TDR, in partnership with the WHO Global Tuberculosis Programme (GTB), has developed an interactive web-based toolkit that supports national TB programmes and other partners to conduct implementation research designed to evaluate digital technologies for TB care.

The Challenge: Implementing and scaling up digital tools for TB care

The persistence of the tuberculosis epidemic demands innovative approaches to TB care and prevention. Digital technologies present novel ways to improve patient-centred care or to make better use of resources by TB programmes. Thus, digital technologies are emerging as important tools to advance progress towards reaching targets of the WHO End TB Strategy. These technologies are even more critical in times of crisis, such as the current COVID-19 pandemic. However, barriers to effective implementation and scale-up of innovations are often context-specific and may require different approaches depending on the setting.

The Solution: An implementation research toolkit focused on digital technologies and TB

The Implementation Research for Digital Technologies and TB (IR4DTB) toolkit aims to build capacity in implementation research and help fill knowledge gaps around using and scaling up digital technologies for TB care. The interactive toolkit comprises six modules that reflect key steps in the IR process:

- Preparing for implementation research
- Developing IR objectives and questions
- Research methods
- Data management and analysis
- Planning and conducting IR
- Knowledge translation

The toolkit was launched during a five-day training workshop in Beijing, China, in November 2020, organized by the Chinese Centre for Disease Control and Prevention and the Chinese Anti-TB Association, in collaboration with TDR and GTB. The training was held in person for staff from the national TB programme of China and virtually for participants from Malaysia, Pakistan and Uzbekistan. The workshop assisted country teams to develop IR proposals to study implementation challenges related to the effective scale-up of digital health technologies for TB care in their home countries.
Facilitating the implementation of a shorter all-oral treatment for drug-resistant TB

TDR, in collaboration with the WHO Global Tuberculosis Programme and technical partners, has developed an operational research package (dubbed ShORRT for Short all-Oral Regimens for Rifampicin-resistant Tuberculosis) to support the implementation of such drug regimens.

Since its launch in Hyderabad, India, in November 2019, the ShORRT initiative is now involving and supporting 25 countries worldwide, working alongside WHO regional and country offices, academia, technical partners such as KNCV Tuberculosis Foundation, the Union and Damien Foundation, and funding agencies such as the United States Agency for International Development (USAID) and the Global Fund.

Piloting of study procedures being conducted by Cambodia’s National Center for Tuberculosis and Leprosy Control for the CAM-ShORRT research project.

Data collection methods are consistent across the ShORRT and EURO initiative; more information on the EURO initiative is available here.
Research for implementation of strategies to tackle malaria and other vector-borne diseases

Optimizing delivery and effectiveness of seasonal malaria chemoprevention

The Challenge

Because of slowing global progress against malaria, WHO has highlighted the urgency of strengthening the delivery of proven interventions such as seasonal malaria chemoprevention (SMC). This intervention targets the Sahel and sub-Sahel regions of Africa, and the very high burden of malaria in these regions of Africa means that optimizing the delivery of SMC could make a substantial contribution to reducing the global burden of malaria mortality.

In 2019, SMC programmes reached 22 million children. However, many of these children did not receive the full number of monthly treatments that are needed to protect them throughout the high-risk period, and there remain an estimated 13 million children who are eligible for SMC and could benefit but live in areas which do not have SMC programmes. The urgent need to close this gap and to optimize SMC delivery to protect all eligible children was stressed in a technical consultation organized by WHO’s Global Malaria Programme and TDR.

National programmes and partners rising to the challenge

With funding from the European and Developing Countries Clinical Trials Partnership (EDCTP), the OPT-SMC project is supporting 13 countries in West and Central Africa to conduct implementation research on SMC, working in partnership with the Université de Thiès in Senegal, TDR, Medicines for Malaria Venture, and the London School of Hygiene and Tropical Medicine (LSHTM).
Objectives of the OPT-SMC project

The specific objectives of the project are as follows:

- Strengthen capacity of national malaria control programmes to
  - conduct implementation research to understand barriers to effective SMC delivery, including those related to community engagement, and take steps to overcome those barriers; and
  - monitor SMC delivery and evaluate its impact.

- Promote inter-country collaboration and sharing of information, experience and expertise, so that countries can benefit from each other’s experience and apply lessons learned.

Countries participating in the project

This project builds on and strengthens an existing network of countries involved in SMC in West and Central Africa – the SMC Working Group – established in 2013 by Roll Back Malaria. The advisory group supporting this project comprises representatives of donor agencies, nongovernmental organizations involved in SMC, the West African Health Organization (WAHO) and WHO. From 2020 to 2024, countries will be supported to plan and conduct implementation research to improve and adapt SMC delivery.

The approach is similar to that of the WARN-TB network of national TB programmes in West Africa.
Spotlight

Responding to the impact of COVID-19 on SMC planning and delivery

In early 2020, countries and partners involved with OPT-SMC anticipated that the COVID-19 pandemic would disrupt SMC planning and delivery. Documenting these disruptions and measuring their impact on SMC delivery and performance was identified as a need in order to learn from this episode and inform future contingency plans for a similar global health emergency.

TDR has led the development of a tool to assess the impact of COVID-19 on SMC delivery (through process indicators) and effectiveness (through coverage indicators). This was done in collaboration with OPT-SMC partners and the WHO Global Malaria Programme. The tool has been shared with all SMC partners during a SMC working group meeting.

All countries implementing SMC will be supported in using this assessment tool. The findings and lessons learned will be shared in 2021 among the national malaria programmes and OPT-SMC partners to inform future responses under similar circumstances.

Adapting SMC delivery to the COVID-19 context

SMC involves door-to-door distribution once a month to over 20 million children in 13 countries by some 200,000 drug distributors. Training and supervision of SMC delivery, as well as ensuring the quality of drug administration on this scale, is a major challenge.

In March 2020, national malaria programmes (NMPs) recognized that planned face-to-face trainings would not be possible because of COVID-related travel restrictions. In collaboration with a few NMPs, training videos have been developed for the drug distributors. These videos were posted on YouTube and translated into French, Portuguese and other local languages such as Hausa and Wolof:

The videos have been well-received by partners funding SMC delivery as they are easily accessible for the drug distributors and can be used for future trainings, thereby reducing the cost of this intervention and helping to harmonize messages and practices.

As COVID-19 continues its rapid spread, WHO would like to send a clear message to malaria-affected countries in Africa: Do not scale back your planned malaria prevention, diagnostic and treatment activities.

Dr Pedro Alonso,
Director, WHO Global Malaria Programme
Building medical entomology capacity to fight vector-borne diseases

Training and innovation in the field of medical entomology are essential to mitigate the burden of vector-borne diseases globally. However, there is a significant shortage of medical entomologists worldwide, particularly in the low- and middle-income countries most affected by vector-borne diseases.

To help address this issue, in 2016 TDR convened educational institutions from across the globe in Lisbon, Portugal, to share information on their courses on vector-borne diseases. A mapping of available entomology courses was also conducted, revealing that the majority take place in the Americas, two-thirds of the courses are taught in English, and little or no information on these courses was accessible online.

This has resulted in the development of a Global Atlas of Medical Entomology Schooling (GAMES), which lists a total of 126 medical entomology courses offered both on-campus and through distance learning in 32 countries across all WHO regions, covering seven languages.

With support from TDR, the online directory is hosted by the Global Vector Hub (GVH), an online, open-access platform for sharing knowledge and information on vector control and research. The directory was launched to coincide with the launch of the new WHO road map for eliminating neglected tropical diseases on 28 January 2021.

For each course, session dates, course outline, fees, language of instruction and responsible managers are listed. TDR will support the GVH to maintain the directory and keep it up-to-date.

The directory was developed with several worldwide institutions and made freely available online in collaboration with the GVH and ARCTEC at the London School of Hygiene & Tropical Medicine, following the mapping of courses available globally. WHO’s Department of Control of Neglected Tropical Diseases and the WHO Global Malaria Programme have also reviewed the directory and provided recommendations.

This activity has been supported jointly by TDR’s Research for Implementation Unit and Research Capacity Strengthening Unit.

Many countries have very few or no medical entomologists who are specialized in vectors that transmit disease. We welcome this initiative to help build the new generation of field and operational research scientists fighting NTDs.

Dr Mwelecele Malecela, Director, WHO Department of Control of Neglected Tropical Diseases
Research for implementation of strategies to tackle neglected tropical diseases

WHO has launched a new road map for neglected tropical diseases 2021-2030, which sets out global targets for 2030 and milestones to prevent, control, eliminate and eradicate a diverse set of 20 diseases and disease groups. TDR is committed to supporting the implementation of this roadmap. Below we highlight strategies to achieve and sustain elimination of two NTDs: onchocerciasis and visceral leishmaniasis.

Generating data to support WHO recommendations and country policies on use of moxidectin to eliminate onchocerciasis

Onchocerciasis (also known as river blindness) is caused by the parasitic worm *Onchocerca volvulus*, transmitted between humans by black flies. Infection can lead to severe itching, disfiguring skin conditions and visual impairment, including blindness. Globally, an estimated 218 million people still live in areas at risk for transmission of onchocerciasis. More than 99% of people at risk or affected by the disease live in 26 countries of sub-Saharan Africa.

In 2018, the United States Food and Drug Administration (FDA) approved moxidectin for the treatment of river blindness in patients aged 12 years and older, the result of around two decades of research and collaboration between TDR, researchers in onchocerciasis endemic and other countries, WHO country offices and the not-for-profit biopharmaceutical company Medicines Development for Global Health.

The regulatory approval of moxidectin is a necessary but insufficient prerequisite for WHO guidelines and national policies on the use of the treatment for onchocerciasis elimination. To provide the additional data required, the following three studies are being prepared:

- a pharmacokinetic and safety study to identify a moxidectin dose for 4- to 11-year-old children to be conducted in Ghana
- a 12 500-participant double-blind study on the safety of moxidectin compared to ivermectin in individuals with any level of infection (including undetectable levels) in the Ituri province of the Democratic Republic of the Congo and other sites under selection
- a 1000-participant double-blind study evaluating the parasitological efficacy and safety of annual or biannual treatment for two years with moxidectin compared to ivermectin in the Ituri province of the Democratic Republic of the Congo

Following adaptation of the implementation plans to the requirements of the COVID-19 pandemic, the studies are expected to start in 2021. They will build on and utilize the research infrastructure and capacity developed by TDR to conduct the studies that resulted in the 2018 approval of moxidectin. This infrastructure has also been tapped for research supporting control and elimination of onchocerciasis by other stakeholders.
Ensuring sustained elimination of visceral leishmaniasis

Visceral leishmaniasis (VL), also known as kala-azar – Hindi for ‘black fever’ – is a tropical, parasitic disease transmitted through bites from certain types of sandfly. Kala-azar is characterized by fever, weight loss, swelling of the liver and spleen, anaemia and immune-system deficiencies. Left untreated, the fatality rate can be as high as 100% within two years.

Since 2005, TDR has been working with research institutions and control programmes on the Indian subcontinent to conduct research that informs policy and practice for the elimination target of one case of kala-azar per 10,000 inhabitants. One of the longest and most successful implementation research programmes at TDR, these efforts have contributed to the success of the VL elimination work in the Indian subcontinent. However, further investment and new approaches are required to ensure elimination is sustained.

To address this, work is under way at the level of: i) active case detection; ii) vector control and reduction of transmission; and iii) research policy interface.

The following are highlights of progress made in 2020:

• Two studies are nearing completion in Bangladesh and Nepal, looking at community-based surveillance of infected kala-azar vectors with active case search by village health workers and a community-based vector control approach.
• A study to evaluate the use of the rK39 diagnostic test in febrile populations presenting in secondary-level health centres in Bangladesh and India is nearing completion and should provide insight into what could be the best diagnostic tool for the elimination phase.
• A protocol for a study on the prevalence of HIV/kala-azar coinfection in Bangladesh has been submitted to ethics committees for review.
• Three studies have been developed in consultation with national programmes of Bangladesh and Nepal to address factors behind emergence of new cases despite elimination efforts; prevalence of post kala-azar dermal leishmaniasis (PKDL); and follow-up of treated cases to assess risk of relapse in both countries. The studies will start as soon as ethical clearance is obtained.
Guiding implementation of a multisectoral approach to prevent and control vector-borne diseases

The prevention and control of many diseases, including vector-borne diseases (VBDs), must be driven by more than just the health sector alone and a multisectoral approach (MSA) is required. The 2030 Agenda for Sustainable Development offers a great opportunity to bring together different sectors, such as water and sanitation, agriculture and education. Furthermore, the Global Vector Control Response (GVCR) 2017–2030, which was approved by the World Health Assembly in 2017 by more than 190 WHO Member States, considers the intra- and intersectoral approach as one of the four pillars to achieve efficient control of vectors and vector-borne diseases.

To support deployment of such multisectoral approaches, TDR has developed a new guidance framework on a “Multisectoral approach to the prevention and control of vector-borne diseases.” This framework was developed following six commissioned reviews and a workshop supported by the Swiss Agency for Development and Cooperation, the Canadian International Development and Research Centre and the Swiss Tropical and Public Health Institute. The guidance framework aims to provide theoretical background and practical support to decision-makers to design comprehensive strategies involving multiple sectors for the prevention and control of VBDs.

The main findings of the six commissioned reviews have been published in a supplement of the Journal of Infectious Diseases.

Through the commissioned reviews, consultations with stakeholders, and discussions with funders and expert advisors, research priorities for MSA have also been identified, including collaboration between the health and water and sanitation sectors. As a result, a collaboration has been established between TDR and the WHO Water and Sanitation (WASH) group, through financial support from the Swedish International Development Cooperation Agency (Sida), to conduct case studies and strengthen country capacity on the multisectoral approach against VBDs, with a focus on the WASH sector. The overall objective of the collaboration is to reduce WASH-related diseases of poverty, with a primary focus on VBDs. Among the deliverables is a training package that will support multisectoral actions to strengthen WASH-related disease control and prevention efforts, as well as specific recommendations for policies.
Operationalizing a One Health approach to vector-borne diseases in the context of climate change

One Health is a multisectoral, transdisciplinary approach that recognizes the interconnection between the health of people, animals and plants and their shared environment. The approach ensures collaboration and coordination among all relevant sectors and stakeholders to achieve better health outcomes. The implementation of this approach has become even more urgent and critical with the emergence of COVID-19 and the re-emergence of Ebola and other zoonotic and vector-borne disease threats. For the current biennium, TDR is building on the outputs of an earlier research initiative (started in 2013) on vector-borne diseases and climate change as the basis for operationalizing One Health.

To build capacity to implement this complex approach, TDR is developing a framework for operationalizing One Health, which is being aligned with the Libreville Strategic Action Plan to Scale up Health and Environment Interventions in Africa (2019-2029). The framework is expected to result in an essential policy and management tool that currently does not exist for operationalizing One Health.

A One Health scorecard is also being developed to measure success and harmonize evaluations of performance of One Health plans in different settings.
In developing the One Health framework, TDR is engaged with the following partners:

- **WHO Regional Office for Africa**
- **Fondation Mérieux**
- **UN Environment Programme**
- **OIE-Africa (World Organization for Animal Health)**
- **FAO-Africa (Food and Agriculture Organization)**
- **PAMCA (Pan Africa Mosquito Control Association)**

Professor Paul Gwakisa (in white jacket) of Sokoine University of Agriculture in the United Republic of Tanzania.
Four research projects are currently under way to pilot test the framework for operationalizing One Health. These will be completed in 2021.

**Project 1**

From an Ecohealth research project to operationalizing One Health approach in West Africa (Côte d’Ivoire and Mauritania).

Principal Investigator: Dr Brama Kone, Centre Suisse de Recherches Scientifiques en Côte d’Ivoire (CSRS).

**Project 2**

Operationalizing One Health in Ingwavuma Community: Developing Transdisciplinary Methodology (South Africa).

Principal Investigator: Professor Moses J. Chimbari, University of Kwazulu-Natal.

**Project 3**

Operationalizing One Health Initiative for Malaria and Rift Valley Fever Project in Kenya.

Principal Investigator: Professor Benson B.A. Estambale, Jaramogi Oginga Odinga University of Science and Technology.

**Project 4**

One Health Operationalization in the United Republic of Tanzania.

Principal Investigator: Professor Paul S. Gwakisa, Sokoine University of Agriculture.
Supporting researchers to incorporate intersectional gender analysis into research

TDR is encouraging scientists to consider in their research the intersections of gender with other social inequalities that have an impact on health conditions associated with infectious diseases of poverty. Such an intersectional gender lens enables us to better understand how to develop effective gender-responsive strategies to prevent and control infectious diseases and improve health outcomes.

TDR’s gender and infectious disease research efforts are being guided by a new strategy on intersectional gender research. This has included the development of an interactive web-based toolkit, which supports researchers to:

- understand the importance of gender, sex and intersectionality in infectious disease and implementation research;
- design, develop and report studies using an intersectional gender lens following a step-by-step guide;
- understand barriers to effective implementation of health interventions to prevent and control infectious diseases; and
- explore solutions to enhance equality in access to health care so that no one is left behind.

While the toolkit includes a focus on research that prioritizes the prevention and control of infectious diseases of poverty, it is equally relevant to other health research and interventions. Researchers in Nepal and Uganda have been piloting the toolkit, in collaboration with Makerere University School of Women and Gender Studies and HERD International. Despite disruptions from the COVID-19 pandemic, they conducted research to develop case studies focusing on schistosomiasis and tuberculosis in Uganda and lymphatic filariasis and tuberculosis in Nepal.

While conducting these case studies, the toolkit has been used to develop research questions and identify key social stratifiers to explore how they intersect with gender dimensions to influence vulnerability to illness, exposure to pathogens, response to illness, treatment received and discrimination and/or unequal access to healthcare. The research findings will be submitted to a peer review journal in 2021.
Generating evidence to strengthen intersectional gender research efforts

TDR has launched a research call for proposals that address gender, sex, and their intersections with associated inequities in infectious diseases. The generated evidence will inform health policy and practice to fight infectious diseases and inequalities in access to health care in low- and middle-income countries.

Research team in Kathmandu District, Province 3.

Research team during pilot of TDR Toolkit for incorporating intersectional gender analysis in research on infectious of poverty, in Bardiya District (Nepal).
Operational research for accelerating progress towards universal health coverage

This comprehensive assessment provides reassurance of the high quality of the publications generated by the SORT IT global partnership, which can be used for informed decision-making in public health and for achieving the Sustainable Development Goals.

Mr Franz Fayot,
Minister for Development Cooperation and Humanitarian Affairs, Luxembourg

A decade of high-quality operational research for universal health coverage

Operational research is vital to improve the quality and performance of health care delivery, especially in low- and middle-income countries. This type of research helps address real-world questions such as how to deliver new tests, vaccines and drugs that can improve public health and save lives. WHO increasingly relies on such evidence for informing its implementation guidelines.

A new study published in the Tropical Medicine and Infectious Disease journal analysed 392 publications - the largest dataset of observational studies ever assessed for quality of reporting – and included 72 countries, 50 journals and 24 publication domains. Almost nine out of ten publications were graded as being of excellent reporting quality according to the Structured Reporting of Observational Studies in Epidemiology (STROBE) checklist.

The assessed publications were generated by the Structured Operational Research and Training Initiative (SORT IT), a global partnership-based initiative that is coordinated by TDR and has over 50 implementing partners, including disease control programmes, nongovernmental organizations (NGOs) and academia. SORT IT builds sustainable capacity to conduct operational research according to country priorities, and encourages the use of the generated evidence for decision-making to improve public health.

Since 2009, SORT IT has been scaled up globally to include:

- 93 low- and middle-income countries
- 50 implementing partners
- 925 participants trained

In 2020, a survey found that:

- 417 SORT IT alumni were contributing to the COVID-19 response in 72 countries
- 307 SORT IT alumni were applying skills gained from SORT IT training to tackle the pandemic in 60 countries
Operational research for tackling antimicrobial resistance

In 2019, TDR, with the support of the Government of the United Kingdom of Great Britain and Northern Ireland’s Department of Health & Social Care, launched a SORT IT programme focused on tackling antimicrobial resistance (AMR). Thirty-six research studies are in progress in Ghana, Myanmar, Nepal, Sierra Leone and Uganda, and in 2020, high-level endorsement has been established for 24 more projects in Myanmar and Sierra Leone.

TDR also joined forces with the WHO regional offices for Africa, the Americas and South-East Asia to support 13 additional AMR studies. Embracing a “One Health” approach in the planning process, comprehensive engagement has been established with AMR coordinating committees, WHO country and regional offices and implementing partners in target countries in Asia, Africa and Latin America. SORT IT activities are fully aligned with national AMR action plans.

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SORT IT research projects on AMR

“Locally generated research, with local solutions and local ownership” to eliminate TB in marginalized populations

SORT IT alumni have championed the establishment of two operational research hubs in Armenia and Ukraine for Eastern Europe and Central Asia (EECA) countries. Through these hubs, SORT IT alumni are contributing to ending TB and multidrug-resistant TB in marginalized populations through operational research, capacity building and evidence-informed decision-making in EECA countries. This programme is led by SORT IT alumni in Armenia and Ukraine and involves six countries, six national TB programmes and four NGOs from Armenia, Georgia, Kyrgyzstan, Moldova, Tajikistan and Ukraine.

The research themes include optimized TB case finding in marginalized populations, digital technology for TB care, adjunctive interventions, shorter MDR TB regimens, TB/HIV integration and data quality.

The findings from SORT IT-generated research continue to make an impact. For example, the evidence continues to be used by the Alliance for Public Health in Ukraine to optimize current programmes of the Global Fund and PEPFAR in 14 countries in Eastern Europe and Central Asia. It is also informing the implementation of the Tuberculosis Action Plan for the WHO European Region.
Operational research for addressing neglected tropical diseases

In March 2020, a face-to-face SORT IT workshop on neglected tropical diseases was held in Addis Ababa, Ethiopia. The 10 participants included those affiliated with the Ethiopian Public Health Institute, two local universities, the WHO country office in Ethiopia and the Federal Ministry of Health’s NTD control programme. The workshop aimed to support research projects covering eight diseases: scabies, snakebite, schistosomiasis, leprosy, mycetoma, leishmaniasis, rabies and trachoma.

The facilitators included two alumni from an earlier SORT IT NTD course in Ethiopia. This reflects a key objective to build in-country capacity to sustain future SORT IT courses led by local facilitators. This was a collaborative activity supported jointly by TDR’s Research for Implementation and Research Capacity Strengthening units.

Digital solutions to overcome COVID-19 restrictions and continue SORT IT trainings

To mitigate the effects of COVID-19-related travel restrictions and the ban on international meetings, TDR and a SORT IT partner in Armenia (TB-RPC) developed a virtual platform which was used successfully in 2020 for a SORT IT course on tuberculosis. This digital solution is enabling SORT IT trainings to continue through remote facilitation, despite the current challenges posed by the pandemic.
Using the SORT IT approach to tackle snakebite in Kenya

Globally, every year there are 1.8 to 2.7 million cases of snakebite envenoming and 130,000 deaths. For snakebite, as with other NTDs, operational research can be critical in improving programme outcomes, by boosting local research capacity and improving the collection and utilization of data. The Kenya Snakebite Research and Intervention Centre (K-SRIC) has been using the SORT IT approach to tackle the burden and management of snakebite in Kenya, as well as to improve community engagement on this disease.

Dr George O. Oluoch, who heads K-SRIC, and Ms Cecilia Wairimu Ngari, lead research nurse at the centre, are champions for tackling snakebite and are passionate about the SORT IT approach.

The team recently concluded a data collection exercise on the socioeconomic impact of snakebite on communities and healthcare facilities. “Our data is showing that in areas we have invested in community engagement, more people are seeking health care for snakebite,” says Dr Oluoch.

K-SRIC operates a community-based model consisting of motorcycle ambulances, community health volunteers and paramedics trained in first aid and management of snakebite. In the event of a snakebite, these units are deployed for the rapid transfer of snakebite victims to hospitals while they undergo first aid.

Currently, the K-SRIC team - in collaboration with the Liverpool School of Tropical Medicine - is assessing the cost-effectiveness of the motorcycle ambulances versus no intervention at all or with 4x4 vehicles. This model could then be adopted for use in other parts of rural sub-Saharan Africa.

Dr Oluoch stresses the importance of operational research: “We need the evidence to identify long-lasting interventions that work for reducing the burden of snakebite.”

This research is supported jointly by TDR’s Research for Implementation Unit and Research Capacity Strengthening Unit.

We need the evidence to identify long-lasting interventions that work for reducing the burden of snakebite.

Dr George O. Oluoch,
Institute of Primate Research, Kenya Snakebite Research & Intervention Centre
Research capacity strengthening activities are at the heart of the TDR Strategy 2018–2023, which aims to contribute to the achievement of the Sustainable Development Goals and universal health coverage. Within the context of the TDR vision, the overall goal is to strengthen the capacity of individuals, institutions and societies to produce research evidence useful for reducing the burden of infectious diseases of poverty in low- and middle-income countries. Collaborations with partner universities and training institutions in these countries are critical to jointly achieving this goal.

Long-term investments in research capacity have contributed to building health system resilience and capacity to respond to the COVID-19 pandemic. A recent survey has shown that substantial numbers of scientists who have been trained through TDR programmes have been able to pivot their skills to respond effectively to COVID-19.

**Contents**

- Building the capacity of the next generation of researchers and global health leaders
- Implementation research training tools
- Fostering learning and collaboration through Regional Training Centres
- Strengthening capacity to conduct clinical trials in low- and middle-income countries
- Access and Delivery Partnership
2020 Highlights

Research training and COVID-19 response:
Almost 60% (411 of 699) of survey respondents who received TDR training have been involved in research on COVID-19. Almost 80% (315 of 411) of those involved are directly applying skills learned during TDR training to fight the pandemic.

Adapting training programmes to the pandemic:
The seven universities participating in the postgraduate training scheme actively adopted virtual trainings to ensure continuation of the scheme.
More than 3000 researchers participated in the Massive Open Online Course on Implementation Research (IR) in English, French and Spanish.

New training partners
Institutions in Senegal and Malaysia have joined TDR’s global network of research training partners, filling a gap in French-speaking West Africa and strengthening activities in the WHO Western Pacific Region.

Masters students at the University of Ghana’s School of Public Health.
Building the capacity of the next generation of researchers and global health leaders

TDR’s Postgraduate Training Scheme provides a full academic scholarship through seven participating universities located in low- and middle-income countries. Students obtain master’s degrees focused on implementation research on malaria, TB and neglected tropical diseases.

Since the inception of the scheme in 2015, the seven universities have awarded a cumulative total of 258 master’s scholarships and eight PhD fellowships. Among the 258 master’s students, 132 (51%) are men and 126 (49%) are women. Of the eight PhD students, one is a woman.

International reach of the Postgraduate Training Scheme

Working with you and hosting the TDR scholarship programme have been among the highlights of my tenure. The TDR programme has introduced IR forcefully into our work and has connected us with other universities around the world. Most of all, it has allowed us the opportunity to educate and train future public health leaders in our region who are much needed in their countries and communities.

Professor Iman Nuwayhid,
Dean of the Faculty of Health Sciences at the American University of Beirut (2012-2020)
Adapting postgraduate training and networking to the COVID-19 pandemic

In 2020, the seven universities actively adopted virtual trainings to ensure continuation of the scheme, despite the pandemic-related social distancing measures and travel restrictions. Some universities have also guided students to adapt their implementation research thesis projects. Instead of field work, they are conducting secondary data analysis or systematic reviews. Some have already presented their work to university faculty in virtual formats.

The seven universities participating in TDR’s Postgraduate Training Scheme also recently launched IR Connect, a networking platform for sharing lessons learned and collaboration. In November 2020, the seven universities organized a panel discussion on the “Importance of implementation research for post-COVID response in low- and middle-income countries.” Perspectives from seven countries of the Global South were shared on the impact of COVID-19 on their health systems, key implementation challenges in controlling the pandemic, and the possible opportunities for young implementation research practitioners to contribute to the effort.

TDR is encouraging current and upcoming master’s students to consider conducting implementation research related to the COVID-19 pandemic (including vaccine implementation) for their thesis.

Above all, we need to understand what the COVID-19 pandemic has done to the most vulnerable and marginalized populations. At the end of the day, remember for whom we are doing this research.

Dr Yameen Mazumder, Senior Project Advisor and Program Specialist, James P Grant School of Public Health, BRAC University

Credit: Gadjah Mada University.
Implementation Research Training Tools

Massive open online course (MOOC) on implementation research

This course is a step-by-step online training for public health researchers and decision-makers, disease control programme managers, academics and others that focuses on how to design and demonstrate robust IR projects to improve control of infectious diseases of poverty and generate better health outcomes.

2020 updates
The course is being translated into Arabic, Chinese and Russian (adding to English, French and Spanish). Three additional modules are currently being developed: one on the use of qualitative methods in IR, another using illustrative examples of IR in the control of Chagas disease and Leishmaniasis for participants from Latin America, and a third on gender and intersectionality. An analysis of the content of the Letters of Intent submitted by MOOC participants is also under way to identify research topics of interest, in collaboration with the United Nations University International Institute for Global Health (UNU-IIGH).

Implementation Research Toolkit

This toolkit provides deeper learning on implementation research. It is designed to help researchers identify system bottlenecks and the stakeholders to be involved in the process, formulate appropriate research questions, conduct the research and develop a plan for implementing the study results.

2020 updates
Translation into Chinese is under way with support from the Guangdong Academy of Chinese Medical Sciences, and a new module on gender considerations in IR is being developed in line with TDR’s intersectional gender research strategy.

Ethics in Implementation Research

TDR and WHO’s Global Health Ethics team have jointly developed a training course for researchers and research ethics committees on the important ethical considerations in implementation research (IR). The course comprises six interactive modules interspersed with activities including case studies, role-play and quizzes.

2020 updates
An interactive digital version of this course will be available soon.
Fostering learning and collaboration through Regional Training Centres

TDR supports a network of Regional Training Centres (RTCs) located in each WHO region, which have been selected on a competitive basis to conduct and disseminate training courses on good health research practices and IR. Regionalization of these courses using train-the-trainer (TtT) methodology and training workshops enables TDR to work more closely with the end users and become more relevant to regional needs, empower centres based in the regions to serve as training hubs, and utilize existing expertise in disease-endemic countries.

The Regional Training Centres have played a critical role in the dissemination and management of TDR’s Massive Open Online Course (MOOC) on IR. Through the course, participants learn the core concepts of IR, including how to:

- Identify the challenges of various health settings;
- Assess the appropriateness of existing strategies;
- Develop new interventions and strategies by working with communities and stakeholders;
- Specify IR questions; and
- Design rigorous research projects. This includes how to identify IR outcomes, evaluate effectiveness and make plans to scale up implementation in real life settings.

Case studies are introduced, presented and interpreted by experienced public health researchers, practitioners and academics.

Regional Training Centres (RTCs) directly supported by TDR
Online training opportunities such as the MOOC have proven to be essential during the COVID-19 pandemic. Four courses of the MOOC in English, one course in French and one in Spanish were organized in 2020.

2020 Participation in Massive Open Online Course (MOOC) on IR by region

Separately, the RTC for the WHO African Region developed a short course on the Principles of Implementation Research. The training is currently being offered as a regular short course at the School of Public Health in Ghana. This training has been proposed to be integrated into various curricula of regular postgraduate programmes. In this regard, two courses (Bachelors’ Course on Basics of Implementation Research and a PhD Course on Advanced Implementation Research) have been proposed to the School Management Committee at the University of Ghana. This process is currently at the final stage of approval.

The course is also being implemented in other WHO regions, for example at the Astana Medical University, through face-to-face training at four institutions in Kazakhstan (Republican Center for Health Development, Republic Center for Digital Health, National Center for Public Health and Astana Medical University). In 2020, the course was offered as an elective course within the university’s postgraduate programme (MSc and PhD in Public Health and Medicine).
New partners in Malaysia and Senegal join TDR’s network of research training institutions

We are very proud to join TDR’s training network and look forward to helping develop research capacity in Senegal and neighbouring countries.

Adama Faye,
Director, Health and Development Institute, Université Cheikh Anta Diop

The Malaysian Global Health Consortium (MGHC) in Kuala Lumpur, Malaysia, and the Université Cheikh Anta Diop in Dakar, Senegal, have joined TDR’s expanding international network of research training institutions, further advancing our initiative to strengthen implementation research capacity in low- and middle-income countries.

Université Cheikh Anta Diop is the new sub-regional training centre for the West Africa sub-region and also joins TDR’s Postgraduate Training Scheme, filling the training gap in French-speaking countries. MGHC in Malaysia is the new Regional Training Centre for the Western Pacific Region.

Université Cheikh Anta Diop hosts the Institut de Santé et Développement, which has a strong track record of working with Senegal’s Ministry of Health and Welfare to support training, research and implementation of health interventions, and is part of the network of excellence for training public health specialists in West Africa. This will facilitate the university’s role as a sub-Regional Training Centre in disseminating training courses on implementation research, as well as training master’s students through the Postgraduate Training Scheme.

The MGHC is a consortium of three institutions: the United Nations University International Institute for Global Health (UNU-IIGH), the Malaysian Ministry of Health’s Institute for Health Systems Research and the Department of Social and Preventive Medicine at the Faculty of Medicine of the University of Malaya.

This is the first time that a consortium, rather than a single institution, will undertake RTC activities. The partnership draws together the expertise of each institution to create a unique RTC with specialties in methodological approaches for implementation research, international bioethics training and applied health systems research, as well as a long-standing postgraduate training programme in public health. The University of Malaya was recently awarded grants in IR and bioethics trainings by the Fogarty International Centre at the National Institutes of Health in the United States of America.
Strengthening capacity to conduct clinical trials in low- and middle-income countries

Complementing our training programmes on research for implementation, TDR also supports the Clinical Research and Development Fellowship (CRDF) scheme, which enables early- to mid-career researchers in low- and middle-income countries to learn how to conduct clinical trials. Participants are placed for 12 months in pharmaceutical companies, product development partnerships, or research organizations and receive a reintegration grant at their home institution. The fellowship is jointly implemented by TDR and the European & Developing Countries Clinical Trials Partnership.

Since 1999, a cumulative total of 112 fellows (26 women, 86 men) from 36 low- and middle-income countries have been selected to be placed with 31 partner organizations. All fellows have returned to work in their home institutions except one who has played a pivotal role in a wide range of research and development projects, including trials for new candidate vaccines and drugs. Following efforts in 2019 to encourage applications from women, the percentage of women selected increased from 23% in the previous calls (2007 to 2019) to 58.5% in the latest call (2019 and 2020).

In March 2020, due to COVID-19 containment measures, the possibility of working from home with supervision from mentors at the training partner organizations (TPOs) was offered to the 18 fellowship recipients. While most fellows chose to remain placed at their TPO, three fellows decided to return to their home countries (two from Ethiopia and one from Rwanda). One fellow later rejoined his TPO in early September to conclude the fellowship.

For the current fellowship year, 14 fellows (of whom seven are women and seven are men) were selected by nine training partner organizations. Most fellows will start their fellowships by the second quarter of 2021, except two due to the challenges of obtaining visas and border closures resulting from the COVID-19 pandemic. Eleven fellows are from countries in the WHO African Region, one is from the WHO Americas Region, one fellow is from the WHO South-East Asian Region, and one fellow is from the WHO Eastern Mediterranean Region.
Training partner organizations hosting CRDF fellows in 2020

- EUROPEAN VACCINE INITIATIVE, GERMANY
  Hosting CRDF fellow from Cameroon.

- GLAXOSMITHKLINE VACCINES, BELGIUM
  Hosting CRDF fellows from Kenya, Rwanda, Uganda and United Republic of Tanzania.

- INFECTIOUS DISEASES DATA OBSERVATORY, UK
  Hosting CRDF fellow from Sierra Leone.

- BARCELONA INSTITUTE FOR GLOBAL HEALTH (ISGLOBAL), SPAIN
  Hosting CRDF fellow from Ethiopia.

- INFECTIOUS DISEASES DATA OBSERVATORY, AUSTRALIA
  Hosting CRDF fellow from Ethiopia.

- FOUNDATION FOR INNOVATIVE NEW DIAGNOSTICS, SWITZERLAND
  Hosting CRDF fellows from Colombia, Ethiopia and Nepal.

- TAKEDA, SWITZERLAND
  Hosting CRDF fellow from Colombia.

- SWISS TROPICAL AND PUBLIC HEALTH INSTITUTE, SWITZERLAND
  Hosting CRDF fellow from the Democratic Republic of the Congo.

- NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, SWITZERLAND
  Hosting CRDF fellow from Colombia.

- INTERNATIONAL VACCINE INSTITUTE, SOUTH KOREA
  Hosting CRDF fellow from Nigeria.

- INSTITUT PASTEUR DE MADAGASCAR, MADAGASCAR
  Hosting CRDF fellow from Mali.
Dr Wilfried Mutombo Kalonji

From the Clinical Research and Development Fellowship to transforming treatment for sleeping sickness in the Democratic Republic of the Congo

Treatments for some neglected tropical diseases (NTDs) have seen a transformation, thanks to the ambition of dedicated scientists and increased political will. For sleeping sickness (Human African Trypanosomiasis), for example, treatments were toxic or cumbersome, and nothing had changed for decades. This prompted Dr Wilfried Mutombo Kalonji to research new treatments. He helped develop fexinidazole, the first all-oral drug for sleeping sickness and a game-changer in the control of the disease.

Dr Kalonji started this work as a recipient of a TDR Clinical Research and Development Fellowship, which placed him as a trainee at Sanofi in Paris for six months from December 2010. There he learned the theoretical underpinnings of clinical trials – everything from protocol development and site set-up to regulatory approval. Dr Kalonji went on to spend his second six months with the not-for-profit Drugs for Neglected Disease initiative. The combination of working at both Sanofi and then DNDi proved to be critical in developing a new treatment for sleeping sickness.

Previous treatments for sleeping sickness were extremely toxic. Melarsoprol, for example, is an arsenic derivative that killed one in 20 patients from toxicity. Later, an improved treatment was a combination of nifurtimox and eflornithine. The problem was that the whole treatment kit weighed 40 kg and had to be sent in large boxes from cities to remote regions where they were needed. In addition, patients had to be in hospital for seven days to receive intravenous infusions of the medicine. This clearly was not a sustainable way to try and eliminate the disease.

Training partner organizations:
Sanofi and Drugs for Neglected Diseases initiative (DNDi).

Fellowship highlights:
Contributed to development of fexinidazole, the first all-oral drug for sleeping sickness. Fexinidazole distribution in the Democratic Republic of the Congo began in January 2020.
Conducting clinical trials in rural Africa

Dr Kalonji and his team at DNDi partnered with Sanofi (who had the patent for the drug) to test fexinidazole in clinical trials in the Democratic Republic of the Congo, his home country, and the Central African Republic.

In a region with poor infrastructure, they had to set up clinical trial sites from scratch, installing electricity, microscopes, transportation, internet, satellites, and trained staff.

"Wilfried really helped us understand how to conduct the best possible study, and how to accommodate our GCP needs in light of the local constraints," says DNDi’s Dr Nathalie Strub-Wourgaft, who selected Dr Kalonji to be the clinical coordinator of the trial for the duration of his fellowship. Part of DNDi’s mission, Strub-Wourgaft adds, is to strengthen countries’ capacity in clinical research, and Dr Kalonji’s training surely contributes to that.

She stresses that DNDi, too, has learned from the experience, “by understanding where the patients are, the complexity of their treatment, their nutrition, their whole medical setting – a lot of the things we need to take into account to build a study that works.”

The road to eliminating sleeping sickness

In 2018, fexinidazole was recommended for approval by the European Medicines Agency and has “changed the life of patients,” says Dr Kalonji. “We are going from a heavy regimen with more than two weeks of treatment to an easy to use treatment that can be used outside of hospital. It has transformed things for people who can’t access treatment easily.”

Fexinidazole is now being donated by Sanofi to the World Health Organization (WHO) for distribution to national sleeping sickness control programmes in countries where the disease is endemic. In January 2020, fexinidazole distribution began in the Democratic Republic of the Congo.

This is especially timely given WHO recently launched the road map for neglected tropical diseases 2021-2030, which gives NTDs more global visibility and emphasis, says Dr Kalonji. The push to eliminate sleeping sickness is important because cases of sleeping sickness are declining, and that can give people the false impression that the problem is solved. Focusing efforts on the final stage of elimination is crucial to see it through, he says.

Looking to the future of NTDs

Developing a treatment that is just one pill a day for ten days was a significant achievement, but Dr Kalonji is not content with that. His team at DNDi are now working on developing acoziborole as a single-dose treatment.

During the COVID-19 pandemic, managing a team of scientists who are all working from home has been a new challenge for Dr Kalonji, especially with four children at home. On top of that, electricity cuts out at random times. But Dr Kalonji and his team are pushing ahead with efforts to transform the future of NTDs.
Access and Delivery Partnership

The Access and Delivery Partnership (ADP) helps countries strengthen policies, human capacities, systems and regulations to ensure that effective medicines, vaccines and diagnostics reach the people who need them.

ADP is a collaboration between UNDP, the WHO Department of Regulatory Systems Strengthening, TDR and PATH, and is funded by the Government of Japan. (From TDR, ADP activities are jointly managed by the Research Capacity Strengthening Unit and the Research for Implementation Unit.) Within the partnership, TDR is working with ADP focus countries to strengthen institutional capacity in the areas of priority setting, implementation research and drug safety monitoring. The ADP focus countries are Ghana, India, Indonesia, Malawi, Senegal, Thailand and the United Republic of Tanzania.

As part of ADP activities managed by TDR’s Research Capacity Strengthening Unit, a face-to-face workshop on TDR’s Implementation Research Toolkit had been planned for countries in West Africa in March 2020 in Abidjan, Côte d’Ivoire. However, due to the COVID-19 pandemic, the workshop was re-oriented to a virtual format and took place in August.

The main focus of the workshop, delivered in French, was to help participants draft implementation research proposals. Twelve participants (9 men and 3 women) joined from seven countries (Benin, Burkina Faso, Cameroon, Guinea, Côte d’Ivoire, Senegal and Togo). Using the Implementation Research Toolkit, participants were trained on:

1. Understanding implementation research
2. Developing an implementation research proposal
3. Planning and conducting an implementation research project
4. Communicating and advocating the results of an implementation research project
5. Integrating implementation research into the health system

The workshop was an opportunity presented by the COVID-19 pandemic to adapt the IR toolkit training resources to online delivery formats. This experience has also highlighted the urgent need to develop and disseminate TDR resources in diverse languages.
Saha Naseri of Afghanistan, who received a TDR scholarship to obtain her Master’s in Public Health from the American University of Beirut in Lebanon.
Strengthening health research capacity in countries builds resilience to disease epidemics

The COVID-19 pandemic is testing the health research capacity of every country in an unprecedented way. TDR has been supporting training programmes to strengthen capacity for research on infectious diseases of poverty for many years – and a recent survey has shown that substantial numbers of researchers who have been trained by TDR were able to pivot their skills to respond effectively to COVID-19.

In total, almost 60% (411 of 699) of respondents from three TDR training programmes (Postgraduate Training Scheme, SORT IT and CRDF) surveyed have been involved in research on COVID-19. Almost 80% (315 of 411) of those involved were directly applying skills learned during TDR training to respond to the pandemic.

TDR training has led to transferable skills

The survey shows that the skills that people gained through TDR’s research training programmes have allowed them to support both the research response to COVID-19 and the broader health system response. This ability to transfer the skills learnt in the training programme is critical to sustaining resilient health research systems.

Among the 58 scientists who reported using skills gained from postgraduate master’s training, 26 (45%) were involved in implementation, operational research or clinical research. Among the 219 people who reported using skills gained from the SORT IT programme, 56 (26%) were involved in implementation and/or clinical research. Of the 38 respondents who reported using skills gained during their CRDF training (often provided by pharmaceutical companies), 28 (74%) were involved in clinical research through a variety of roles, most commonly as clinical trial manager.

Dr James Squire of the Ministry of Health and Sanitation in Sierra Leone, who conducted and published research on the impact of Ebola on health systems through a SORT IT training programme in 2016, is now leading the Ministry’s efforts to enhance surveillance systems that generate real-time, high-quality and disaggregated data for tackling COVID-19.

The training I received from TDR and partners has been invaluable as it has enabled me to transfer the skills I learned while conducting research on Ebola to my current work on COVID-19.

Dr James Squire,
Ministry of Health and Sanitation, Sierra Leone
Oluwagbenga Ogunfowokan from Nigeria, who participated in TDR’s CRDF programme in 2009, is supporting the response effort in African Union countries.

“We have formed a consortium to respond to the COVID-19 crisis in Africa using my team management, protocol writing and data management skills,” says Ogunfowokan.

Many scientists who received research training before the COVID-19 pandemic are currently involved in a range of health system areas, including critical preparedness and response, situation analysis/surveillance, infection control and clinical management, data generation, analysis and reporting, and mitigating the effect of COVID-19 on other diseases. This indicates that boosting research capacity has collateral benefits that go beyond research to strengthen the pandemic response.

Areas of the COVID-19 response where trainees are applying skills gained through TDR-supported training programmes.

<table>
<thead>
<tr>
<th>Area of the COVID-19 response</th>
<th>Clinical Research and Developing Fellowship (CRDF) (N=38) n (%)</th>
<th>Postgraduate Training Scheme (PGTS) (N=58) n (%)</th>
<th>Structured Operational Research and Training Initiative (SORT IT) (N=219) n (%)</th>
</tr>
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<tbody>
<tr>
<td>Research</td>
<td>28 (74)</td>
<td>26 (45)</td>
<td>56 (26)</td>
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<tr>
<td>Critical preparedness and response</td>
<td>17 (45)</td>
<td>30 (52)</td>
<td>88 (40)</td>
</tr>
<tr>
<td>Situation analysis/surveillance</td>
<td>14 (37)</td>
<td>47 (81)</td>
<td>142 (65)</td>
</tr>
<tr>
<td>Infection control and clinical management</td>
<td>14 (37)</td>
<td>30 (52)</td>
<td>82 (37)</td>
</tr>
<tr>
<td>Data generation, analysis and reporting</td>
<td>17 (45)</td>
<td>39 (67)</td>
<td>119 (54)</td>
</tr>
<tr>
<td>Mitigating effect of COVID on other diseases</td>
<td>4 (10)</td>
<td>19 (33)</td>
<td>50 (23)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (16)</td>
<td>39 (67)</td>
<td>15 (7)</td>
</tr>
</tbody>
</table>

These survey results demonstrate the value of investing in people and in research training ahead of emergencies. We now have the right people in the right place at the right time.

Dr John Reeder,
Director, TDR
Global engagement

Promoting innovative and inclusive approaches to research

An essential part of TDR’s work is to engage with the global health community to promote and facilitate the role of research for development and to advocate for the use of high-quality evidence to inform policy. TDR is at the interface between research and health care delivery. Embedded within the United Nations family through its co-sponsors (UNICEF, UNDP, the World Bank and WHO), this unique position allows TDR to create a bridge from local communities to the World Health Assembly to enable the broadest possible scope of dialogue and debate across the spectrum of health research – from priority setting to evidence-based policy-making at local, national, regional and global levels.

This global engagement includes collaboration with WHO regional offices, shaping the global health research agenda, leading a collaborative network on research funding, creating an enabling environment and providing evidence for community-based social innovations to transform health care delivery, and leverage a global network of 7500 scientists and experts who have been associated with TDR.

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• Sharing research data to better understand and tackle disease outbreaks
• Transforming health care delivery through social innovation and research so no one is left behind
• Collaborating with WHO and other partners on research grants
• Harmonizing investments in research capacity
• Leveraging our global network for collaboration, mentoring and capacity building
• Promoting more inclusive research through a new intersectional gender research strategy
2020 Highlights

- TDR joins COVID-19 Clinical Research Coalition to contribute to data sharing agenda
- Social Innovation in Health Initiative partners with WHO Health Emergencies Programme on community engagement package
- 48 research grants awarded in the six WHO regions through small grants scheme
- TDR Global’s initiative on innovative financing for research leads to successful crowdfunding campaign
- A new intersectional gender research strategy launched to promote more inclusive research
Sharing research data to better understand and tackle disease outbreaks

TDR is a champion of open science as another means of supporting research on infectious diseases of poverty. In 2020, TDR joined the COVID-19 Clinical Research Coalition, which was formed to accelerate COVID-19 clinical research in resource-limited settings as announced in a Comment in The Lancet, co-signed by 70+ organizations from 30+ countries. Membership now stands at 134 institutions and organizations from 50 countries.

TDR is contributing to the Data Sharing Working Group and initiated a review of existing data platforms that include COVID-19 data, to identify and advise researchers from low- and middle-income countries (LMICs) which are the most suitable platforms for their data. In December, the working group published a letter on data sharing during the pandemic in The Lancet Digital Health.

TDR has also worked in partnership with the Infectious Diseases Data Observatory (IDDO) over a number of years, engaging research communities to share their data for research on malaria, schistosomiasis, leishmaniasis and, more recently, Ebola.

The Ebola Data Platform was set up by IDDO in 2016 to collect and standardize disparate clinical, epidemiological and laboratory data into a central, secure repository. The platform was developed in close collaboration with the governments and organizations affected by the 2014 to 2016 Ebola outbreak in West Africa, in order to address key questions and inform global health responses. The repository now contains data from over 13 500 patients and recently opened to accept data access requests from researchers.

June 2020 saw the first applications to access data stored on the Ebola Data Platform. Significantly, three of the successful applications were from principle investigators based in Ebola-affected countries, where these data were originally collected.
The aggregated data sets on the Ebola Data Platform are larger than any of those included in a single study or a set of patient records from one locality. Consequently, this platform will enable an investigation of treatment outcomes with a greater sample size, such as the benefits of using saline drips during treatment. These aggregated data will also enable analysis for patients that are underrepresented in single studies, such as pregnant women and children.

TDR provides support to IDDO by assisting with the development of the governance mechanism to manage access and by chairing the Data Access Committees that ensure the research undertaken by those accessing the data is in line with the agreed research agenda. One requirement for access to the data on the Ebola Data Platform is that applicants describe how their research will support and build research capacity in countries affected by Ebola.

In addition, through the Clinical Research and Development Fellowship (CRDF) scheme and other funding, TDR is supporting researchers from Ebola-affected countries to be trained in the skills required to curate and manage large data sets. The following are recent examples:

- January 2020: Dr Kwame Oneill joined IDDO as the Platform’s latest fellow supported by TDR. Kwame is a clinician and District Medical Officer based at the Republic of Sierra Leone Ministry of Health and Sanitation. He will be with IDDO for a 12-month training programme with a focus on developing skills in data management, clinical research, data governance and biostatistical analysis.
- February 2020–2021: Dr Amadou Woury Jallow is a TDR fellow under the CRDF scheme and a Disease Surveillance Officer with the Republic of the Gambia Ministry of Health. Based at the Royal Veterinary College, University of London, he is working with IDDO’s schistosomiasis and soil-transmitted helminthiases theme on a 12-month training programme.

Field visit by the 2nd Vice-President of the Republic of Burundi, Dr Joseph Butore, to get to know more on Ebola preparedness activities in the country.
Transforming health care delivery through social innovation and research so no one is left behind

The Social Innovation in Health Initiative (SIHI) is a network of partner institutions and a community of stakeholders established in 2014 through TDR’s leadership. The initiative aims to unlock the capacity of all health system actors and stakeholders, including communities, frontline health workers, innovators, policy-makers, the private sector and academics, to work in collaboration and advance community-engaged social innovation in health care delivery in the Global South. This is pursued through:

(i) research to understand what works, what doesn’t, and how to sustain, replicate or scale up social innovations;

(ii) capacity strengthening to ensure that countries in the Global South take the lead in promoting and researching social innovation; and

(iii) advocacy to catalyse a global culture change and influence the health agenda at the local, national, regional and global levels.

The network has expanded to engage low- and middle-income countries where SIHI country hubs have been established; at the University of Malawi, Makerere University in Uganda, University of the Philippines Manila, the Centro Internacional de Entrenamiento e Investigaciones Médicas (CIDEIM) in Colombia and the Social Entrepreneurship to Spur Health (SESH) in China. In 2020 these hubs partnered with research institutions to establish additional social innovation hubs in Ghana, Honduras, Indonesia, Nigeria and Rwanda.

SIHI also collaborates with various contributing partners at the global level, such as Fondation Mérieux, Ahimsa Fund, Make-A-Difference (MAD), the WHO Innovation hub, the Pan American Health Organization (PAHO), UNAIDS, the UN University, the WARN-TB Secretariat in Benin, UNDP and UNICEF, to advance and promote social innovation activities in the Global South.

SIHI is supported by TDR, with additional funding provided by the Swedish International Development Cooperation Agency (Sida).
SIHI hubs’ achievements 2014 to 2020

- 326 Projects identified
- 44 Research case studies
- 7 Randomized controlled trials
- 14 Community events (local)
- 68 Publications in international journals
- 15 Open calls for innovations identified
- 42 Case film

For a complete update on progress, see the SIHI Global 2020 progress report video here. Some highlights are described below.

New SIHI Secretariat in the Philippines leads the SIHI network

Based at the University of the Philippines Manilla, the SIHI Secretariat was established in May 2020, to support: (i) the coordination of a growing SIHI network, including SIHI research hubs and partners worldwide; (ii) global network communications; and (iii) sustainability of the network. The Secretariat team has enhanced coordination, sharing and learning activities and leveraged resources among SIHI partners.

Notably, the SIHI Secretariat has been selected as a partner and awarded US$ 150 000 by WHO’s Health Emergencies Programme to develop a community engagement package that will support the implementation of various health interventions. The work will be led by the SIHI Secretariat in collaboration with SIHI research hubs in Colombia, Honduras, Malawi, Nigeria and South Africa.

The SIHI Secretariat also organized a digital workshop on “Creating an Enabling Environment for Social Innovation in Health.” During this event, the role of philanthropies in advancing social innovation in health care delivery through research was showcased, and collaborations with the private sector were explored. Participants included SIHI partners and 10 philanthropies and private companies selected through an open call on “Exploring partnership with philanthropies to advance social innovation in health.” New potential collaborations with American Leprosy Missions, Derbi Foundation, German Health Alliance, MAD Group and Zuellig Family Foundation have been identified and will be further developed in 2021.

> Watch the video.
TDR, UNDP and UNICEF join forces to support scale-up of SIHI innovation in Uganda

The joint UNICEF/UNDP “Big Think Challenge” aimed to identify innovative solutions that accelerate progress to meet the Sustainable Development Goals. Over 190 proposals were submitted and evaluated, and the SIHI innovation in Uganda, “Drug Shop Integrated Management of Childhood Illness,” was included in the proposal that was awarded second prize. This innovation is managed by Dr Phyllis Awor of Makerere University’s School of Public Health, who leads the SIHI Uganda hub.

UNDP (through the Access and Delivery Partnership), UNICEF, TDR and SIHI Uganda will build upon lessons learnt in engaging the private sector, and the US$100 000 award will serve as a catalytic fund to conduct preliminary studies on private sector engagement to scale up the SIHI Uganda innovation. This project will be conducted in collaboration with TDR’s Research for Implementation Unit.

Two innovations affiliated with SIHI win the first WHO Innovation Challenge

The “Reboot Health & Wellbeing: Keeping Young People Safe” Challenge, led by WHO’s Innovation hub in collaboration with various UN organizations, invited youth from around the world to unleash their creativity and innovative spirit to reboot young peoples’ health and wellbeing.

The two winners were “Contagious Kindness: Pay-it-forward”, an innovation launched by SESH, the SIHI research hub in China, and “Children’s voices on COVID-19”, an innovation in South Africa affiliated with the Bertha Centre, the SIHI research hub in South Africa. The two winners were selected by an expert panel from 140 ideas submitted from around the world. Key elements of success shared by the winners are: (i) research being at the core of the initiative from the outset; (ii) collaborations with like-minded stakeholders; and (iii) kindness and caring for others. Strong evidence of effectiveness and potential for scale-up were recognized and valued for both initiatives.
Collaborating with WHO and other partners on research grants

TDR has a history of schemes supporting researchers and public health practitioners, in collaboration with the WHO regional offices, through small grants (ranging from US$ 10 000 to US$ 20 000). Since 2014 the programme’s focus has been on implementation research and each region has taken more responsibility for jointly identifying with TDR the research priorities to be funded. The small grants programme embodies the overall TDR Strategy by incorporating research capacity strengthening, research for implementation and global engagement. The programme has included all WHO regions since 2016.

Several new calls for proposals were issued jointly with regional offices in 2020, despite the challenges due to the COVID-19 pandemic. TDR also partnered with the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP) and the Alliance for Health Policies and Systems Research (AHPSR) on grants for research on migration and health in the Americas. Calls for proposals now include minimum requirements to ensure that research plans are gender-sensitive and data are disaggregated, at least by age and sex.

Grants awarded in 2020 by region

<table>
<thead>
<tr>
<th>Partners</th>
<th>Priority research areas</th>
<th>Number of applications</th>
<th>Number of proposals funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO regional offices for Europe, Africa, South-East Asia, the Americas</td>
<td>Antimicrobial resistance</td>
<td>200</td>
<td>17</td>
</tr>
<tr>
<td>WHO Regional Office for the Eastern Mediterranean</td>
<td>TB, malaria, neglected tropical diseases (NTDs)</td>
<td>78</td>
<td>11</td>
</tr>
<tr>
<td>WHO Regional Office for the Western Pacific</td>
<td>Malaria, NTDs</td>
<td>47</td>
<td>8</td>
</tr>
<tr>
<td>HRP and AHPSR</td>
<td>Migration and health in the Americas</td>
<td>49</td>
<td>12</td>
</tr>
</tbody>
</table>
Harmonizing investments in research capacity

ESSENCE on Health Research is an initiative to improve the coordination and harmonization of investments in research capacity. ESSENCE members embrace the principles of donor harmonization and country alignment, and according to these principles, they align their activities and procedures with the priorities of the countries they are supporting.

ESSENCE members include some of the top funders of health research around the world. These include health research funding agencies, international health institutions, government research agencies, development agencies, philanthropists and multilateral initiatives.

In 2018, the “Money and Microbes” report (supported by the World Bank Group and the Coalition for Epidemic Preparedness Innovations) recommended that research capacity building should be considered an element of pandemic preparedness and a component of the global health security agenda. It also recommended that ESSENCE should articulate a mechanism for reviewing investments in research capacity building in LMICs. As the sole initiative that brings together a wide range of funding agencies to coordinate funding efforts, it was not surprising that this TDR-based initiative was asked to tackle this problem.

The new ESSENCE Mechanism, recently outlined in an Annals of Global Health article, will give funders of research information to identify gaps in capacity that exist in LMICs and the opportunity to work together to address those disparities. It focuses on three distinct but complementary “workstreams” to inform funders: Data and Analysis, Investment Mapping, and Coordination and Collaboration.

The inaugural meeting of the ESSENCE Mechanism took place virtually from 4 to 5 June 2020. It gathered speakers and about 73 diverse stakeholders from Africa, Asia and Latin America dealing with the theme of capacity building for research for health.

In 2020, ESSENCE also published two new good practice documents, adding to the four previously produced:

Five keys to improving research costing and pricing in low- and middle-income countries – this is an update of the original 2012 document which includes updated policies and approaches to costing research in LMICs. The document is available in English, French and Spanish.

Seven approaches to investing in implementation research in low- and middle-income countries – this document is unique in its guidance on how best to invest, nurture and use implementation research for health, which is of growing importance in the context of LMIC health system challenges.
Leveraging TDR’s global network for collaboration, mentoring and capacity building

TDR Global is a worldwide community of passionate scientists and experts who have been working with TDR on research on infectious diseases of poverty.

Key objectives of TDR Global:
- Foster mentorship to help members increase their capacity and profile.
- Catalyse collaborations by showcasing TDR Global members’ profiles, identifying experts to be considered for review of grants or expert committees for TDR and its partners and encouraging networking and connections between people.

Crowdsourcing innovative mentorship methods

A regional and global research mentorship challenge contest was launched in late 2019 to engage scientists in LMICs to generate practical ideas on how to improve research mentorship. Four submissions out of a total of 123 were selected as semi-finalists. In June, during a final pitch webinar, the semi-finalists presented their ideas, implementation plans and preliminary data, and five judges were invited to give comments. Three of the semi-finalists were determined to be eligible for global prizes. The Social Entrepreneurship to Spur Health (SESH) team is currently working with the regional TDR Global nodes to support the implementation of the semi-finalists’ plans.

<table>
<thead>
<tr>
<th>Region</th>
<th>Name</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>Christine Boinett</td>
<td>Your Digital Mentor</td>
</tr>
<tr>
<td>Latin America</td>
<td>Ana María Aguilar Liendo</td>
<td>Community-based mentoring to enhance competencies and development of rural Bolivian research teams investigating Factors contributing to infant stunting</td>
</tr>
<tr>
<td>Africa</td>
<td>Nsisong Asanga</td>
<td>A Six-Step Plan For TDR Global Research Mentorship Improvement</td>
</tr>
<tr>
<td>Asia</td>
<td>Ezra Valido</td>
<td>Getting research to work (GROW) for people</td>
</tr>
</tbody>
</table>
Engaging TDR Global members through regional nodes

In 2020, significant progress was made on the regionalization of TDR Global activities to engage more scientists, experts and other relevant individuals from the regions in TDR Global activities. TDR Global regional nodes have been established within the TDR-supported regional training centres in Africa, Asia and Latin America and have started leading TDR Global activities, including building TDR communities at regional level and crowdsourcing to identify and select mentorship activities and TDR Global champions.

Latin America node:
- 1037 TDR Global Latin America members engaged.
- Symposium on “Implementation research: an opportunity to bridge the gap between health research, practice and policy” organized.
- TDR Global initiative presented during the first alumni meeting of TDR Clinical Research and Development Fellows for Americas and South-East Asia region.

Africa node:
- 1751 TDR Global Africa members engaged.
- Promotion of mentorship contest results in 38 submissions, including a finalist.
- TDR Global Africa Symposium planned but cancelled due to the COVID-19 pandemic.

Asia node:
- 1030 members.
- Webinars on research mentorship, TDR’s Postgraduate Training Scheme, issues on Good Clinical Practice/Good Clinical Laboratory Practice, building research collaboration planned but postponed due to COVID-19.
Improving networking through the Discovery Platform

A new and improved TDR Global Discovery Platform has been launched, allowing users to more easily identify and contact potential research collaborators. The Platform is also available to scientists and institutions currently unaffiliated with TDR. The updated platform allows users to find and make direct contact with mentors, research experts or collaborators by searching by name, keywords or disciplines. A number of interactive filters allow search results to be refined – for example, by WHO region, availability to collaborate, or nationality. External organizations such as the Global Vector Hub have approached TDR to explain how to use the Discovery Platform to identify talent within the TDR Global community.
The first success from TDR Global’s initiative on innovative financing for research

Many infectious disease researchers in low- and middle-income countries face difficulties when applying for research grants. Crowdfunding can help address these by allowing LMIC researchers to directly raise funds for their research. In partnership with SESH, TDR Global launched a challenge contest to build capacity for crowdfunding for infectious disease research.

The purpose of the contest was to solicit research proposals from LMIC researchers and then provide training and mentorship for selected finalists. TDR Global members volunteered as Steering Committee members, judges, workshop training faculty and mentors. A total of 121 researchers from 37 countries submitted proposals to the contest. Five finalists were identified, matched with 10 TDR Global mentors, and given public engagement training to prepare them for crowdfunding.

In 2020, Dr Teerawat Wiwatpanit of Thailand, one of five finalists selected through the contest, successfully met his crowdfunding target of US$ 8000 through a research crowdfunding challenge supported by TDR Global. The proceeds will be used to fund his research on blocking in vitro mother-to-child transmission of the Zika virus.
Dr Wiwatpanit shares the story of his successful crowdfunding campaign.

Our crowdfunding campaign "Modeling Zika virus transmission from mother to child using uterine mini-organs" was launched on 15 October 2020 through Experiment.com, a crowdfunding platform for funding science discoveries. By 30 November, we successfully raised US$ 8180, exceeding our target goal of US$ 8000.

This was the result of a year-long journey since being selected as one of the finalists of the TDR Global crowdfunding challenge contest. In addition to receiving training on public engagement on my research, I was also mentored by two TDR Global members, Dr Jackeline Alger and Dr Joe Tucker, who helped me develop both written and video pitches for the campaign by giving feedback and suggestions. Jackeline also helped translate the video pitch into Spanish so that we could expand our base to include a wider audience. I also joined a monthly meeting of the other crowdfunding finalists organized by TDR.

Once the campaign was polished, we worked with the Public Relations (PR) department at our institution, the National Center for Genetic Engineering and Biotechnology, Thailand, to get it out to the public. We held a press conference as well as live interviews with local news stations. On the day of these interviews, the traffic to the campaign website increased significantly as well as the amount of donations.

The PR team and I also set up a booth at a science conference and a local farmers market to advertise the crowdfunding campaign and collected cash donations. We were fortunate that the pandemic situation in Thailand was effectively controlled for the most part, and we were able to advertise our crowdfunding campaign in person at academic and social events—with all safety measures implemented, of course.

As for social media outreach strategy, I was quite active on social media platforms like Facebook, Twitter and TikTok to advertise this crowdfunding campaign. I contacted a few social media influencers who agreed to share my posts on their platforms, which helped tremendously to bring in traffic and donations to the campaign from both local and international backers.

Crowdfunding for science was such a new territory for us to explore, and we have learned a lot along the way from the capacity building workshop with TDR in Geneva back in 2019. This experience has highlighted the importance of science communication — how researchers can bring science to the public in a way that feels relatable. We are very excited to get our project on blocking Zika virus mother-to-child transmission up and running.
Promoting more inclusive research through a new intersectional gender research strategy

TDR has launched a new strategy on intersectional gender research as a pathway to a more inclusive, effective response to infectious diseases.

Gender norms, roles and relations are all known to influence people’s susceptibility to different health conditions, particularly those associated with infectious diseases in low- and middle-income countries. Sex and gender are key drivers of health outcomes, including through delivery and access to health products and services for the prevention and control of infectious diseases. The new strategy will ensure that TDR’s research programmes address these issues and emphasize gender as an entry point into a deeper intersectional analysis.

Outlining TDR’s gender research strategic vision, the strategy document guides the implementation of TDR’s work, from research capacity strengthening to evidence generation and promotion of an inclusive research agenda. It emphasizes the importance of analysing different drivers of inequalities that affect the health of women, and men, and people who do not necessarily fit into these binary identities.

It is important that all research that takes a gender lens explores how gender inequity is shaped by and interacts with other forms of inequity so that women, men, girls, boys, and people with non-binary identities are adequately treated within our research and interventions.

Mahendra Shrestha,
Chief of the Health Coordination Division Ministry of Health and Population, Government of the Federal Democratic Republic of Nepal
As well as guiding TDR’s work, it is hoped that the strategy will inspire research partners in their efforts to combat infectious diseases of poverty. The document advocates and promotes a research agenda and an organizational culture guided by the principles of diversity, inclusivity and equality.

This strategy has been disseminated globally across WHO regions and Regional Training Centres supported by TDR. A new interactive web-based toolkit on incorporating intersectional gender analysis into research on infectious diseases of poverty has also been developed. (See the Research for Implementation section of this report for more details on the toolkit.)

Examples of the application of this strategy on TDR’s work have been detailed throughout this report, including:

- **Small grants scheme**: Calls for proposals now include minimum requirements to ensure that research plans are gender-sensitive and data are disaggregated, at least by age and sex.
- **Implementation Research MOOC**: In collaboration with the United Nations University International Institute for Global Health, an Implementation Research MOOC module on Gender and Intersectionality is being developed.
- **Clinical Research and Development Fellowship**: TDR has been exploring gender-related inequalities that influence the fellowship scheme to increase the number of women applicants and contribute towards gender equality in scientific careers.
- **Training courses on gender-based analysis of vector-borne diseases and climate change** have been institutionalized in selected African universities.
- **TDR is supporting researchers in Nepal and Uganda who are conducting studies exploring how gender intersects with other axes of inequality and its impact on human health.**
TDR is co-sponsored by UNICEF, UNDP, the World Bank and WHO, and it is through these international, multilateral organizations that TDR has such an extensive reach and support. WHO acts as the executing agency of the Programme and provides close ties with its departments for a continuous loop of research informing policy and policy informing research, which in turn supports planning and priority setting at international, regional and national levels.

TDR’s overall management responsibility is ensured by the TDR Special Programme Coordinator, Dr Soumya Swaminathan, who heads WHO’s Science Division as Chief Scientist. Day-to-day management is provided by the TDR Director. Thirty full-time staff and additional project-specific short-term staff come from all regions of the world.

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• Governance and management
• Financial Performance Summary
• Contributions Table
Governance and management

Joint Coordinating Board

TDR’s top governing body is its Joint Coordinating Board (JCB), which includes a mix of representatives from developed and developing countries (see figure below).

The Board comprises 28 members: 12 members selected by the resource contributors to the Programme (including five constituencies of two or more governments sharing one seat); six government representatives chosen by the six regional committees of WHO; six members representing other cooperating parties selected by the JCB itself; and the four co-sponsoring agencies.

Figure: JCB membership
(as of 1 January 2020)

Standing Committee

A Standing Committee composed of representatives from the four co-sponsoring agencies, the Chair and the Vice-Chair of the JCB, the Chair of the Scientific and Technical Advisory Committee (STAC), one representative from the JCB resource contributors group (a JCB member under paragraph 2.2.1 of the TDR Memorandum of Understanding–MOU), and one representative from a disease endemic country (which may be a JCB member under any paragraph of the TDR MOU), provides guidance and oversight on an ongoing basis.
Scientific and Technical Advisory Committee and working groups

STAC is TDR’s overarching advisory body, as foreseen in the Memorandum of Understanding, which oversees the scientific and technical strategies, directions and priorities of TDR. STAC provides its recommendations to the JCB and the TDR Secretariat. The Committee includes up to 15 internationally recognized scientists, with members serving in their personal capacities to represent a range of research disciplines.

In addition, the TDR Secretariat convenes scientific working groups to review and provide advice on the prioritization of proposed activities and the selection of projects for funding, to review and evaluate progress in that regard and make recommendations to the TDR Secretariat. Reviews cover the three strategic priority areas of TDR: Research for implementation, strengthening research capacity and global engagement.

2020 STAC membership

(Chair) Professor Charles MGONE, Vice-Chancellor, Hubert Kairuki Memorial University, Dar es Salaam, United Republic of Tanzania

Dr Ayat ABUAGLA, Trinity Centre for Global Health, Trinity College Dublin, The University of Dublin, Dublin, Ireland

Professor Afif BEN SALAH, Full Professor of Community Medicine, College of Medicine and Medical Sciences, Department of Community and Family Medicine, Arabian Gulf University, Manama, Kingdom of Bahrain

Dr Catharina BOEHME, Chief Executive Officer, FIND Diagnostics, Geneva, Switzerland

Professor Claudia CHAMAS, Researcher, Centre for Technological Development in Health, Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro, Brazil

Professor Sónia DIAS, Associate Professor, International Public Health, Institute of Hygiene and Tropical Medicine, Lisbon, Portugal

Dr Sara Irène EYANGOH, Directeur Scientifique, Centre Pasteur du Cameroun, Laboratoire National de Référence et de Santé Publique, Ministère de la Santé Publique, Yaoundé, Cameroon

Dr Subhash HIRA, Professor of Public Health and Senior Advisor, Public Health Foundation of India, New Delhi, India

Professor Catherine (Sassy) MOLYNEUX, Professor in Global Health, Health Systems Research Ethics Department, KEMRI-Wellcome Trust Research Programme, Kilifi, Kenya

Dr Alwyn MWINGA, Executive Director, Zambart, Lusaka, Zambia

Dr Shagufta PERVEEN, Senior Instructor, Health System and Policy Research Group, Department of Community Health Sciences, The Aga Khan University, Karachi, Pakistan

Professor Bertie SQUIRE, Dean of Clinical Sciences & International Public Health, Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Professor Xiao-Nong ZHOU, Director, National Institute of Parasitic Diseases, Chinese Center for Disease Control and Prevention, Shanghai, People’s Republic of China
Implementation of the TDR Strategy 2018-2023 began in January 2018 and achievements have been reported on in our annual financial and results reports.

Two programme budget and workplan scenarios were approved by the Joint Coordinating Board for the biennium 2020–2021. These included a lower scenario at US$ 40 million and a higher scenario at US$ 50 million. The two-scenario model was developed to help manage the uncertainty of funding and allow a confident start to implementation. Implementation of the lower (US$ 40 million) budget scenario began in January 2020.

The two-scenario model has proved successful, allowing planned costs to be revised to US$ 44 million in line with the higher level of funding projected for the biennium. By 31 December 2020, US$ 17.8 million had been utilized (41% of the revised planned costs).

In June 2020, the Joint Coordinating Board approved two budget scenarios for the biennium 2022–2023, one at US$ 40 million and the other at US$ 50 million.

TDR continues to strengthen its fundraising efforts among both new and existing donors, focusing on the priorities of the current Strategy and aligning with the Sustainable Development Goals.

2020 implementation and revised planned costs (in US$ millions)
2022–2023 budget scenarios (in US$ millions)

Operations 83%
Operations support 17%

Operations 79%
Operations support 21%

Operations 41.4
Operations support 8.6

Operations 31.4
Operations support 8.6

40m Budget
50m Budget
### Contributions Table

**TDR 2020 revenue**

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Core contributions</th>
<th>Amount (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td></td>
<td>3 845 004</td>
</tr>
<tr>
<td>United Kingdom of Great Britain and Northern Ireland</td>
<td></td>
<td>3 807 268</td>
</tr>
<tr>
<td>Switzerland</td>
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<td>1 821 192</td>
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<tr>
<td>World Health Organization</td>
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<td>Spain</td>
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<td>China</td>
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<td>Thailand</td>
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<td>Malaysia</td>
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<td>Miscellaneous</td>
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**Contributors providing project-specific funding**

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Amount (US$)</th>
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<tbody>
<tr>
<td>National Institute of Health Research (NIHR), United Kingdom</td>
<td>2 664 090</td>
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<tr>
<td>Bill &amp; Melinda Gates Foundation</td>
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<td>Sweden</td>
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<tr>
<td>United Nations Development Programme (UNDP)</td>
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<tr>
<td>World Health Organization</td>
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<tr>
<td>Luxembourg</td>
<td>400 813</td>
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<td>Switzerland</td>
<td>173 342</td>
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<td>Medicines Development for Global Health Limited (MDGH)</td>
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<tr>
<td>University of Oxford</td>
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<td><strong>Subtotal</strong></td>
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**Total contributions**

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1 The 2020 contribution from the Government of the People’s Republic of China will be reported in the certified financial report in 2021.
TDR, the Special Programme for Research and Training in Tropical Diseases, is a global programme of scientific collaboration that helps facilitate, support and influence efforts to combat diseases of poverty. It is co-sponsored by the United Nations Children’s Fund (UNICEF), the United Nations Development Programme (UNDP), the World Bank and World Health Organization (WHO).