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**Annual Report 2018**

**Research Capacity Strengthening**

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## List of abbreviations

<b>ADP</b>	Access and Delivery Partnership project
<b>AFR</b>	WHO African Region
<b>AMR</b>	WHO Region of the Americas
<b>BMGF</b>	Bill & Melinda Gates Foundation
<b>CRDF</b>	Clinical Research and Development Fellowship
<b>DNDi</b>	Drugs for Neglected Diseases initiative
<b>EDCTP</b>	European and Developing Countries Clinical Trials Partnership
<b>EFPIA</b>	European Federation of Pharmaceutical Industries and Associations
<b>EMR</b>	WHO Eastern Mediterranean Region
<b>ER</b>	Expected result
<b>EUR</b>	WHO European Region
<b>EVI</b>	European Vaccine Initiative
<b>FHS/AUB</b>	Faculty of Health Sciences, American University of Beirut
<b>GCLP</b>	Good Clinical Laboratory Practice
<b>GCP</b>	Good Clinical Practice
<b>GHRP</b>	Good Health Research Practice
<b>GMU</b>	Gadjah Mada University
<b>GPW13</b>	WHO 13th Global Programme of Work
<b>HIV</b>	Human immunodeficiency virus
<b>IDRI</b>	Infectious Diseases Research Institute, the United States
<b>IFPMA</b>	International Federation of Pharmaceutical Manufacturers and Associations
<b>IIR</b>	Intervention and implementation research
<b>IR</b>	Implementation research
<b>ITM</b>	Institute of Tropical Medicine, Belgium
<b>IVI</b>	International Vaccine Institute, South Korea
<b>JPGSPH</b>	James P. Grant School of Public Health
<b>LMIC</b>	Low- and middle-income country
<b>LSHTM</b>	London School of Hygiene and Tropical Medicine
<b>M&amp;E</b>	Monitoring and evaluation framework
<b>MDR-TB</b>	Multidrug-resistant TB
<b>MIM</b>	Multilateral Initiative on Malaria
<b>MMV</b>	Medicines for Malaria Venture
<b>MoH</b>	Ministry of Health
<b>MOOC</b>	Massive Open Online Course

<b>MPH</b>	Master's in Public Health
<b>NMIMR</b>	Noguchi Memorial Institute for Medical Research
<b>NTDs</b>	Neglected Tropical Diseases
<b>PDP</b>	Product development partnership
<b>R&amp;D</b>	Research and development
<b>RCS</b>	TDR Research Capacity Strengthening Unit
<b>RTC</b>	Regional training centre
<b>SDGs</b>	Sustainable Development Goals
<b>SEAR</b>	WHO South-East Asian Region
<b>SORT IT</b>	Structured Operational Research and Training Initiative
<b>TDR</b>	UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
<b>UHC</b>	Universal health coverage
<b>UNDP</b>	United Nations Development Programme
<b>WPR</b>	WHO Western Pacific Region
<b>WWarn</b>	Worldwide Antimalarial Resistance Network

## Introduction

Research Capacity Strengthening (RCS) activities are at the heart of the Special Programme for Research and Training on Tropical Diseases (TDR) strategy 2018–2023 which is aimed at contributing to the achievement of the Sustainable Development Goals (SDGs) by 2030 and supporting universal health coverage. TDR contributes to a wide range of SDGs, including Goal 3: Ensure healthy lives and promote well-being for all at all ages, and specifically:

*SDG Goal 3 – Target 3.3: By 2030 end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases*

The World Health Organization has set out its interconnected strategic priorities and goals in the 13th Global Programme of Work (GPW13) for 2019–2023. In alignment with these priorities and goals, TDR focuses its efforts on strengthening the capacity of researchers in low- and middle-income countries (LMICs) in implementation research (IR). Therefore, research underpins the key areas of action to achieve the “triple billion” goals in the strategy.

- One billion more people with universal health coverage (UHC)
- One billion lives are improved (through achievement of the SDGs)
- One billion people made safer (from better response to emerging health emergencies)

This annual report on the activities of the TDR Research Capacity Strengthening team describes the progress made against the team’s activities, with in each case an indication of the remaining challenges and plans for 2019. The Scientific Working Group on Research Capacity Strengthening reviewed these activities at its meeting from 26-28 November 2018, and the outcomes are recorded in Appendix 2 (Full list of suggestions made by the Scientific Working Group in 2018).

## Objectives

Within the context of the TDR vision – *The health and well-being of people burdened by infectious diseases of poverty is improved through research and innovation* – the overall goal of the TDR/RCS team 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 LMICs. The following two objectives refer to capacity building for research which produces evidence that has the potential for near-term implications for public health practice and policy.

- Strengthen capacity in LMICs to conduct interdisciplinary priority research by supporting individuals, institutions and networks
- Promote institutional and individual leadership in health research through postgraduate training grants and career development fellowships, and the development of regional training centres (RTCs)

## Highlights of 2018

TDR/RCS has succeeded in renewing funding support for two key activities: firstly, the Clinical Research and Development Fellowship (CRDF) training scheme funded by the Bill and Melinda Gates Foundation (BMGF); and secondly, the Access and Delivery Partnership (ADP) project funded by the United Nations Development Programme (UNDP). TDR/RCS has also shown that it is an innovator in training methods with the May 2018 launch of the first worldwide training using the Massive Open Online Course (MOOC) on implementation research (IR), with a focus on infectious diseases of poverty. The MOOC IR course was given over a period of five weeks. Among the 1,585 participants, 560 received a certificate of completion. The high rate of completion (35%), as compared to common completion rates in other MOOCs (usually around 8–9%), shows that the MOOC IR course responds to a real need.

The TDR/RCS team continues to play a leadership role in developing frameworks for core competencies in research. Building on the development of the framework for core competencies in clinical research, the development of a framework for IR core competencies should be completed by Q1–2019.

The first step has been taken to promote a systematic approach to mapping externally funded activities to strengthen research capacity. TDR/RCS collaborated with the European and Developing Countries Clinical Trials Partnership (EDCTP) to map externally funded international postgraduate training at institutions in sub-Saharan Africa. A paper on the joint EDCTP/TDR mapping was published<sup>1</sup> and has been circulated to all stakeholders initially contacted at the start of the mapping exercise in order to stimulate discussion on how the significant external funders of research capacity-strengthening activities can collaborate in putting this sort of mapping on a systematic footing.

Building on previous policy work with the Global Fund to promote IR in countries receiving Global Fund grants, the RCS Coordinator represented TDR on the WHO/Global Fund advisory group, which developed the *Strategic Framework for Collaboration between the Global Fund and WHO*.<sup>2</sup> The framework, signed on 11 October 2018, recognizes the role of IR and provides a firm basis for ongoing work in TDR to promote the funding of SORT IT activities on malaria and tuberculosis as part of the Global Fund grants.

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<sup>1</sup> This paper is available in *Globalization and Health*, 2018 at: <https://rdcu.be/3Q5D>.

<sup>2</sup> The Global Fund/WHO strategic framework is available at: <https://www.theglobalfund.org/en/updates/other-updates/2018-10-11-who-and-global-fund-sign-framework-agreement/>.

## Progress in 2018 and planned future activities

This report provides a narrative report on progress regarding RCS activities as set out in the TDR workplan 2018–2019. Table 1 shows the expected results (ERs) by outcome, with indicators and the progress against targets, aligned with the TDR Approved Programme Budget and Workplan for the 2018-2019 biennium.

Table 1. RCS workplan overall progress

Ongoing expected results by outcome	Indicators and progress against targets
<p><b>ER 2.1.1.1.</b> TDR support to regional training centres: i) capacity of four existing RTCs enhanced; ii) two recently identified RTCs in the WHO Eastern Mediterranean and African regions become operational; iii) effective networking within the RTC initiative</p>	<p>By 2017, two new short training courses implemented in each RTC.</p> <ul style="list-style-type: none"> <li>• <i>RTCs have taken the ownership of the MOOC on IR by participating in its facilitation. RTCs in AFR and AMR organized a MOOC in English and Spanish.</i></li> <li>• <i>A course on IR basic principles is developed by the RTC in AFR and institutionalized by the RTC in AMR.</i></li> </ul>
<p><b>ER 2.1.3.</b> Short-term training (IMPACT) grants for strengthening research capacity in disease control: i) trainees complete their training and contribute to disease control in their country or region</p>	<p>By 2018, all short-term training grants awarded in 2014–2015 are completed and contributions made to improved health in LMICs.</p> <ul style="list-style-type: none"> <li>• <i>All projects completed (technical and financial closure)</i></li> <li>• <i>All publications published in peer-reviewed journals are tracked</i></li> <li>• <i>All presentations at conferences listed</i></li> </ul>
<p><b>ER 2.1.4.</b> Advanced training in clinical product development: EDCTP/TDR Clinical Research and Development Fellowship grants: i) highly skilled scientists in R&amp;D in low- and middle-income countries; ii) R&amp;D skills gained during training implemented in the home institution Partnership project).</p>	<p>By 2017, 45 new fellows enrolled or completed their CRDF training</p> <ul style="list-style-type: none"> <li>• <i>49 fellows enrolled or completed.</i></li> </ul>
<p><b>ER 2.1.6.</b> UNDP Structured Capacity Building in Implementation Research to improve access and delivery of health technologies in LMICs (Access and Delivery Partnership project)</p>	<p>By the end of 2018, at least two LMICs succeeded in identifying and addressing factors that impede the effective access and delivery of health technologies.</p> <p><i>Ghana and the United Republic of Tanzania are supported to identify and develop plans to address factors critical to effective introduction and uptake of:</i></p> <ul style="list-style-type: none"> <li>• <i>an RTS,S malaria vaccine in Ghana; and</i></li> <li>• <i>paediatric praziquantel formulations in the United Republic of Tanzania.</i></li> </ul>

## Research capacity strengthening

Ensuring that all those in need of health products can gain access to them requires not only clinical research and development, but also strengthened LMIC research capacity to better understand how to deliver them. The aim is to increase LMIC capacity in leading on IR on infectious diseases of poverty. Appendix 1 shows a schematic representation of the range of TDR explicit RCS activities.

### ER 2.1.1.1 Strategic support to WHO regional activities: The Regional Training Centres

*TDR supports a network of Regional Training Centres (RTCs) which have been selected on a competitive basis to conduct and disseminate training courses relevant to the TDR strategy, e.g. on implementation research and ethics and good practices in health research. Regionalization of short courses using train-the-trainer (TtT) methodology and workshops enables TDR to work more closely with the end users, become more relevant to regional needs, empower regional centres to serve as training hubs, and strengthen and utilize existing expertise in disease-endemic countries.*

#### Progress in 2018

The six regional RTCs supported by TDR are listed below with their areas of training expertise:

- **Africa Region:** School of Public Health (SPH), University of Ghana, Accra (*social science and IR*)
- **Americas Region:** Centro Internacional de Entrenamiento e Investigaciones Médicas (CIDEIM), Cali, Colombia (*research project management*)
- **Eastern Mediterranean Region:** Institut Pasteur de Tunis, Tunisia (*IR and good clinical practice (GCP)*)
- **European Region:** Astana Medical University, Astana, Kazakhstan (*bioethics*)
- **South-East Asia Region:** Gadjah Mada University (GMU), Yogyakarta, Indonesia (*social science and IR*)
- **Western Pacific Region:** Research Institute for Tropical Medicine (RITM), Manila, the Philippines (*GCP, good clinical laboratory practice (GCLP) and scientific writing*)

#### Training programmes

The RTCs conducted and disseminated training courses on a wide range of topics:

Bioethics	Good clinical laboratory practice (GCLP)
Biostatistics	Good health research practice (GHRP)
Data analysis for clinical studies	Implementation research (basic principles)
Data management for clinical studies	Project planning and management
Effective Project Planning and Evaluation (EPPE)	Research ethics
Good clinical practice (GCP)	Training the Trainer (TtTs)

These courses were developed by the RTC network to respond to global needs, i.e. to improve the quality of the research – from basic science to implementation research – by applying the concepts of GCP. EPPE and GHRP training courses are available in English, French and Spanish. GCP, GCLP and research ethics courses are only available in English. In addition, some RTCs leveraged funds to organize other training courses to respond to regional needs. These include the following: blended biostatistics course, data analysis and data management for clinical studies.

RTCs have progressively integrated a panel of skill-building courses for bioethics, good practices, project planning, management and evaluation of results within their training programmes. For example, GHRP training courses have been integrated into university curricula for Master and PhD programmes, as well as for undergraduate students such as at the GMU in Indonesia.

The long-term goal is the establishment of a global network of RTCs with common, high-quality training courses to foster collaboration and exchange of experiences in good practices in health research. The RTCs supported by TDR in the Africa and Americas regions are helping each other to implement short training courses according to their respective expertise. For example, an initial EPPE short course was implemented in the School of Public Health at the University of Ghana (SPH) in July 2018 with the help of the RTC in AMR, CIDEIM. The strategy was to ensure that subsequent trainings are conducted effectively by local facilitators, and ultimately, to expand the RTC portfolio of short courses. The workshop was facilitated by Dr Grace Adira Murilla, Principal Scientist, from the Biotechnology Research Institute at the Kenya Agricultural and Livestock Research Organization, and Dr Hastings Ozwara, Director, Institute of Primate Research, Kenya. These two facilitators are members of the EPPE facilitators database and were invited with support from CIDEIM. To complement this EPPE workshop, the training course on basic principles in IR was implemented in CIDEIM during the last quarter of 2018.

As part of networking, and to reach more participants in the South-East Asia region, the GMU collaborated with the Institute of Public Health, Bengaluru, India to facilitate an online version of the GHRP and the TDR Implementation Research Toolkit, and also with the faculty of postgraduate medicine to implement GCP and GHRP training courses in Bhutan. GMU also developed a partnership with the B.P. Koirala Institute of Health Sciences, Nepal and the Nepal Medical College following a training they organized in 2017, for early career researchers, with support from a re-entry grant from TDR/CRDF. The GMU was also selected as a WHO/HRP alliance<sup>3</sup> member in January 2018.

The TDR-supported RTC in the Americas region also disseminated the EPPE training courses in different national universities and research institutions through a network covering South and Central America: Bolivia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica and Suriname. It is expected that institutions introduced to the training will join the regional movement to build project management skills (through EPPE training) among health research teams by training others, who will then train others, so as many systems as possible are reached. A recent example of this process was the training of eight research teams in Suriname and the subsequent identification of three potential trainers. In 2018, these candidates were trained as trainers and within months, and with support from seasoned trainers, they were able to contribute to the introduction of project management skills to research teams in Guyana. Both Suriname and Guyana are now working towards the development of national policies and agendas on research for health, building on the momentum created by the EPPE workshops.

Cooperation in the European region is built on existing partnerships with medical universities, institutions, and schools in the Central Asian States: Armenia, Azerbaijan, Belarus, Georgia, Kazan state of the Russian Federation, Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan.

### **Training tools and courses relevant to implementation research (IR)**

The RTCs have also been involved in training programmes on IR, with the aim of improving access to and delivery of public health tools, strategies and interventions. These include the following: a MOOC on IR; a short course on IR which covers basic methodologies; and more advanced training programmes such as the TDR Implementation Research Toolkit and ethics in IR.

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<sup>3</sup> The full title of this alliance is the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction. For more information see: <https://apps.who.int/iris/handle/10665/258539>.

## Massive Open Online Course (MOOC) on Implementation Research

TDR developed a MOOC on IR with the help of invited experts from various regions, to facilitate the dissemination of the concept of IR among the main stakeholders in the fight against infectious diseases linked to poverty. Experts included public health researchers and practitioners, decision-makers, members of academia and research institutions. The course is in English, but materials also have subtitles in English, French and Spanish. The aim was to illustrate IR concepts on 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 your IR questions; and
- design rigorous research projects (using case studies introduced, presented and interpreted by experienced public health researchers, practitioners and academics).

The MOOC on IR was piloted from October to December 2017 with a panel of 149 invited participants, 19 of which obtained a certificate of completion. The launch of this first course exceeded expectations. The general objective was to increase knowledge about IR and emphasize its importance in addressing public health problems. The combination of different learning modalities (videos, readings, discussion fora, case studies) was recognized as essential to facilitate the learning process. Due to the rigorous work required by this first course, TDR decided to modify the assessment of each module by replacing assignments with multiple quizzes on the different MOOC modules.

This first worldwide MOOC session had a focus on infectious diseases of poverty and was officially launched in May 2018. The event had 1,585 enrolled participants (from 106 different countries), distributed (%) among the WHO regions as follows:

Africa – 64.5% (from 37 countries)	Europe – 4.7% (from 17 countries)
Americas – 14% (from 21 countries)	South-East Asia – 7.5% (from seven countries)
Eastern Mediterranean – 6.7% (from 14 countries)	Western Pacific – 1% (from ten countries)

The top ten countries with the highest representation among enrolled participants were (in descending order): Nigeria; Kenya; India; Ethiopia; Cameroon; Uganda; the United States; Colombia; Ghana and Zambia. Most of the participants were public health researchers (46.5%), followed by public health officers (35%) or both public health researchers and officers (4%). Eleven percent were students and 3.5% among them were just interested in IR. Interestingly, women represented 48% of the public health researchers, but only 24.5% of public health officers. These results fit with the intention of TDR to gain wider recognition of IR as a legitimate and effective field of research, among university researchers, public health practitioners, decision-makers and funders. Having more researchers in this field will contribute to better translation and scaling-up of validated research results into innovative public health interventions against infectious diseases of poverty.

Among the 1,585 enrolled participants, 560 (35%) completed the course and received a certificate. This high rate of completion compared to that in other MOOCs (8–9%), strongly indicates that the MOOC on IR corresponds to a real need. Those who completed the course were distributed among the WHO regions as follows:

AFR - 74.5% (from 24 countries)	EMR - 5.5% (from 11 countries)
AMR - 8.5% (from 14 countries)	EUR - 4% (from 13 countries)
SEAR - 7% (from five countries)	WPR - 0.5% (from two countries)

Women represented 45.5% of the participants who received a certificate of completion. The top ten countries with the highest representation were (in descending order): Nigeria, Kenya, Uganda, India, Cameroon, Ethiopia, Ghana, Colombia, Malawi and Guyana.

The final assignment of the MOOC in IR is the development of a letter of intent for a research project on a specific implementation problem, formulated for the purpose of identifying emerging gaps and needs in research and capacity strengthening in IR. Thus, a careful analysis of the research proposals provides a systematic approach to determine agenda setting in research and capacity building in IR.

Following this MOOC, TDR received requests focusing on the use of course contents for developing training programmes on IR from:

- the Caribbean Public Health Agency (CARPHA) for developing and conducting IR courses related to the prevention of noncommunicable diseases and establishing a community of practice research working group;
- the Institute of Public Health and the Institute of Clinical Translational Science (both at the University of Washington in Saint Louis, Missouri) for adapting, implementing and disseminating evidence-based interventions for ethnic minority populations; and
- The Hunter New England Population Health (HNEPH), New Lambton, Australia, for developing training in IR for public health officers in Papua New Guinea.

TDR will initially run the MOOC in IR from Geneva, but the RTCs will manage the introduction and integration of the course into universities and public health stakeholder institutions in disease-endemic countries. One representative from each RTC participates as part of the management group with the main goal of learning how to manage the online forum discussions. This is coordinated by Dr D. Reidpath, Monash University, and Dr P. Allotey, International Institute for Global Health, United Nations University, both in Malaysia.

The MOOC on IR for Latin America had 426 participants, was held between September and December 2018 and was run by TDR, in collaboration with CIDEIM (RTC for AMR). The course materials were translated into Spanish (mainly the quizzes), with facilitation by five participants from the region who had participated in two previous sessions (particularly the forum discussions).

Two additional MOOC in IR sessions were set up in 2018. The first one tested the use of the MOOC in a blended programme during an IR workshop held in Malaysia for 58 participants from various departments of the Ministry of Health (National Institutes for Health Research; disease control programmes and district health offices), as well as from Malaysian universities. This workshop was organized in collaboration with the Monash University and the International Institute for Global Health, United Nations University.

The second MOOC in IR session was organized between October and December 2018, with 1 250 participants and three facilitators who had participated in a previous MOOC session. It was organized by the School of Public Health (SPH), at the University of Ghana, which is the TDR-supported RTC for AFR.

### **Short course on implementation research**

In tandem with TDR's current focus on intervention and implementation research, the TDR-supported RTC in AFR developed a short course, *The Principles of Implementation Research (PIR)*. Internally, it will be offered as a regular, fee-paying short course at SPH, Ghana. This will eventually enable the RTC to run the PIR course as a self-sustaining venture. The SPH team has proposed the integration of the PIR course into various curricula of regular postgraduate programmes. In this regard, two courses – Basics of Implementation Research (bachelor's level), and Advanced Implementation Research (PhD level) – were proposed to the School Management Committee at the University of Ghana. In addition, it is being offered as a pre-requisite for newly enrolled TDR students participating in the TDR postgraduate training scheme. Externally, two satellite centres (Manhiça

Health Research Centre and the University of Health and Allied Sciences in Ghana) also ran this short course, targeting specific audiences. Both satellite centres offered the PIR short course as well as TtT short courses. The courses were implemented during Q4–2018.

### TDR Implementation Research Toolkit

See section on ER 2.1.6 Access and Delivery Partnership project, which funds the toolkit.

### Ethics in relation to public health with a specific focus on implementation research

A new course on ethics for IR, with a specific focus on implementation research, was developed in collaboration with WHO's Global Health Ethics unit. Current ethics training usually focuses on biomedical, clinical and epidemiological research, and this two-and-a-half-day course covers ethical considerations in planning, conducting and reporting IR. It is designed for programme managers, public health specialists in the ministries of health, national research institutes, staff in health care systems, and research ethics committee members. It aims to help participants: i) recognize the importance of ethical principles in the conduct of implementation research; ii) strengthen their skills in the implementation of these ethical principles in planning, conducting and reporting IR; and iii) apply these skills to their daily work.

Introductory lectures were given during the launch of the MOOC in IR in Kuala Lumpur, Malaysia, and at the GMU. Course development indicated that there is a need to address more specifically multiple disciplines. Regional RTCs are preparing updated course materials for implementation in Q1–2019.

### Training outputs

During 2018, 982 participants were trained in GRP training courses at the RTCs (Table 2) and 1,156 in IR training courses (Table 3).

Table 2. Number (% women) of participants trained on GRP courses at RTCs

Topic	AFR %	AMR %	EMR %	EUR %	SEAR %	WPR %	Total %
EPPE							
Skills-building course	15 (46%)	54 (63%)					69 (59%)
TtT		18 (72%)					18 (72%)
E-learning		9 (55%)					9 (55%)
GCP		105 (61%)	32 (81%)	21 (71%)	373 (60%)	18 (77%)	549 (63%)
GCLP			32 (81%)	21 (90%)	73 (75%)	18 (78%)	144 (78%)
GHRP			29 (55%)	24 (83%)	10 (90%)		63 (78%)
Research ethics		31 (58%)		86 (65%)			117 (59%)
Scientific writing						13 (77%)	13 (76%)
<b>Total</b>							<b>982 (66%)</b>

Table 3. Number (% women) of participants on IR training courses at RTCs

Topic	AFRO	AMRO	EMRO	EURO	SEARO	WPRO	Total
MOOC	417 (36%)	47 (60%)	30 (47%)	25 (72%)	38 (50%)	3 (100)	560 (46%)
MOOC (Spanish)		382 (67%)					382 (67%)
MOOC (blended)	-	-	-	-	58 (76%)	-	58 (76%)
Basic Principles of IR	65 (30%)						65 (30%)
Introduction to IR (TDR toolkit)	-	-	-	52 (61%)	39 (70%)	-	91 (68%)
<b>Total</b>							<b>1156 (57%)</b>

### Monitoring and evaluation (M&E) framework for RTCs

TDR developed an M&E framework in collaboration with CIDEIM to promote and guide the systematic assessment of the strategic and technical relevance of RTCs. Indicators were collectively defined by all six RTCs. The framework, which is now institutionalized in each RTC and used to monitor and assess their performance, consists of four parts:

1. Purpose, proposed approaches and principles of performance assessment in RTCs is defined at different levels and for specific areas of assessment.
2. RTC expected results and key performance indicators are identified to measure progress and reflect RTC performance.
3. Proposed tools for monitoring and evaluating RTC performance.
4. M&E findings are utilized for organizational learning and performance improvement.

### Location of work (ER 2.1.1.1)

An objective of the RTC network is to disseminate short training courses in satellite institutions at country and regional levels. Thus, in addition to the RTC locations in Colombia, Indonesia, Ghana, Kazakhstan, the Philippines, and Tunisia, the short training GHRP courses have also been institutionalized in:

**AFR:** Mozambique

**AMR:** Bolivia, Ecuador, Guatemala, Honduras, Jamaica and Peru

**EMR:** Lebanon

**EUR:** Armenia, Azerbaijan, Belarus, Georgia, Kyrgyzstan, Tajikistan, Ukraine, the Kazan state of the Russian Federation, and Uzbekistan

**SEAR:** India, Myanmar and Nepal

## Remaining challenges

To achieve institutionalization of training courses requires that the training institutions themselves take active ownership of the methods and practices. Ownership is enabled by accepting quality assurance requirements for the training of personnel, as well as incorporating compliance documentation for all training requirements. To strengthen capacity of RTC trainers, two representatives from each RTC participated in a short training course with a focus on adult teaching. The development of a core competencies framework to complement this short training course for facilitators is under discussion. The facilitation training course was developed by Drs Olaf Horstick and Pauline Grys from the Institute of Public Health, University of Heidelberg, Germany, and will be replicated in each RTC. Facilitation quality is assured by a two-step process:

Step 1 – Potential facilitators must first serve as co-facilitators in at least two different training courses

Step 2 – Potential facilitators must undertake a subsequent course in facilitation

The successful introduction of new courses also requires content quality. The training materials, therefore, undergo continual refinement through the incorporation of user and facilitator experience; participant evaluations of the training experience; and thorough analysis of M&E reports. The course contents were harmonized through the development of a training toolkit that includes the curriculum and related documents. Each RTC must follow this tool to run a course. Before final approval, the following three steps are required: 1) develop a pilot course; 2) use input from assessment of the pilot course and incorporate these refinements into a draft final course; and 3) obtain approval of the final course version. Opportunities are under consideration to introduce new courses in home institutions, such as the MOOC in IR.

Operationally, taking ownership involves assurance of training capacity and availability of an adequate number of trainers. Thus, regional development of research capacity and dissemination requires personnel who can be fully dedicated to RTC activities. TDR/RCS realizes that support to human resources is critical to continue the expansion of the RTC capacity-building and strengthening activities.

Finally, the sustainability of the programme must be reinforced. TDR suggests the use of the programme sustainability assessment tool developed by Luke, et al.<sup>4</sup> The tool was tested at the end of 2017, with follow-up actions identified for each RTC. The tool is now included in RTC annual workplans and includes eight sustainability domains:

1. environmental support
2. funding stability
3. partnerships
4. organizational capacity
5. programme evaluation
6. programme adaptation
7. communication
8. strategic planning

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4 Douglas Luke, The Program Sustainability Assessment Tool: A New Instrument for Public Health Programs, in *Prev Chronic Dis*, 2014. 11.130184 [doi.org/10.5888/pcd11.130184](https://doi.org/10.5888/pcd11.130184).

## Plans for 2019

TDR-supported RTCs will continue to institutionalize GHRP training courses in IR through identified satellite institutions. The RTCs will thereafter continue to promote gender equity by monitoring gender-disaggregated data and encouraging participation of women in research training.

### Leverage created from this project

The Fogarty International Center, Washington, D.C., provides leveraged support to the CIDEIM.

### Gender balance

Tables 2 and 3 above show the percentage of women participants in the training courses.

## ER 2.1.2 Postgraduate training grants

*As part of TDR's efforts to increase LMIC capacity to undertake a leadership role in research on the control of infectious diseases of poverty, TDR/RCS provides training grants with a focus on IR. Support for postgraduate training is a TDR core area of work and fellows generally go on to establish careers in research or in public health in LMICs, becoming a part of the TDR Global network.*

### POSTGRADUATE TRAINING SCHEME (MPH/MSC AND PHD)

In 2015, the TDR postgraduate training scheme evolved from a focus on individuals to a partnership with seven universities in LMICs. The following universities were selected by an external committee:

James P. Grant School of Public Health (JPGHPH), BRAC University, Bangladesh	Faculty of Health Sciences, American University of Beirut (AUB), Lebanon
Faculty of Medicine, Gadjah Mada University (GMU), Indonesia	The National School of Public Health, Universidad de Antioquia, Colombia
School of Public Health, the University of Ghana (SPH), Ghana	School of Public Health, University of Zambia University of the Witwatersrand, South Africa

### Progress in 2018

In total since the inception of the TDR scholarship scheme in 2015, the seven universities have received a total of 3,997 applications, processed 1,718 eligible applications and awarded 178 TDR Master's fellowships and 8 PhD fellowships (five at the University of Ghana and three at the University of Witwatersrand). Of the 178 Master's students, 92 (52%) were men and 86 (48%) were women. Of the eight PhD students, one is a woman.

Regarding the 178 Master's fellowships awarded since 2015, the distribution among the seven universities by successive cohort and gender (M = men and W = women) is shown in Table 4.

Table 4. Numbers of Master's students in the postgraduate training scheme

University	Cohort 1		Cohort 2		Cohort 3		Cohort 4		Total
	M	W	M	W	M	W	M	W	
BRAC University, Bangladesh	7	4	7	3	5	4			30
Universidad de Antioquia, Colombia	6	9	3	6					24
University of Ghana	6	3	5	5	3	3	6	4	35
Gajah Mada University, Indonesia	8	8	4	6	3	7			36
American University of Beirut, Lebanon	4	5	3	3	1	3			19
University of Zambia, Zambia	3	2	2	1	2	1			11
University of the Witwatersrand, South Africa	6	2	5	4	3	3			23
<b>Total</b>	<b>40</b>	<b>33</b>	<b>29</b>	<b>28</b>	<b>17</b>	<b>21</b>	<b>6</b>	<b>4</b>	<b>178</b>

For most countries, the proportion of fellowships awarded among the total number of fellowships corresponds roughly to the proportion of eligible applications (Table 5). The countries with 4% or more of the total number of fellowships awarded are Bangladesh (4%), Colombia (5%), Ghana (8%), Indonesia (4%), Kenya (4%), Nepal (10%), and Nigeria (6%). These seven countries together account for 51% of the total number of Master's fellowships awarded since 2015.

Table 5. Number of Master's eligible applications and fellowships awarded by country

Country	Eligible applications		Fellowships awarded	
	Number	%	Number	%
Nepal	191	11	18	10
Ghana	460	27	14	8
Nigeria	217	13	11	6
Colombia	98	6	9	5
Kenya	49	3	7	4
Indonesia	14	0.8	8	4
Bangladesh	88	5	8	4
Zambia	84	5	6	3
Sierra Leone	31	2	5	3
Philippines	7	0.5	5	3
Myanmar	44	2.6	6	3
Malawi	99	6	5	3
Egypt	24	1.4	5	3
Bhutan	12	0.7	5	3
Yemen	21	1.2	3	2
Uganda	33	2	3	2
Timor-Leste	9	0.5	4	2

Country	Eligible applications		Fellowships awarded	
	Number	%	Number	%
Tanzania	31	1.8	3	2
Sudan	15	0.8	4	2
Rwanda	38	2	4	2
Mali	16	1	3	2
India	17	1	3	2
Costa Rica	3	0.2	3	2
Afghanistan	16	1	3	2
Togo	4	0.2	2	1
Syria	17	1	2	1
Peru	5	0.3	2	1
Papua New Guinea	3	0.2	2	1
Pakistan	12	0.7	2	1
Honduras	14	0.8	2	1
Guatemala	2	0.1	2	1
Ethiopia	15	0.8	2	1
Ecuador	6	0.3	2	1
Dominica Republic	3	0.2	2	1
Viet Nam	1	0.06	1	0.5
Venezuela	2	0.1	1	0.5
Vanuatu	1	0.06	1	0.5
South Africa	13	0.8	1	0.5
Paraguay	2	0.1	1	0.5
Palestine	10	0.6	1	0.5
Maldives	1	0.06	1	0.5
Iran	2	0.1	1	0.5
Eritrea	3	0.2	1	0.5
DRC	9	0.5	1	0.5
Cameroun	14	0.8	1	0.5
Burundi	4	0.2	1	0.5
Botswana	4	0.2	1	0.5

### ***Monitoring and evaluation (M&E) framework***

This M&E framework was developed with the involvement of the participating universities. The information collected is consistent with, and complements, the annual technical and financial reports submitted to TDR by each university.

## *Development of database and quantitative data analysis*

Although there is a systematic methodology in place to collect data from participating universities for M&E, reorganization of the data was needed to enhance analysis. A major aim of tracking M&E reports includes establishing a single database to achieve faster retrieval and easier analysis. Initial steps to develop a consolidated database included merging the individual Excel worksheets into a unified data file and validating the M&E reports submitted by each university for possible errors and inconsistencies (including reviewing and checking the format). Once a consistent data and file format were established, the 84 Excel worksheets were merged into a single file composed of four mega worksheets.

To generate outputs from the consolidated Excel worksheets for the key dashboard indicators, pivot tables for automatic data pulling were used which allowed for the reorganization and summarization of columns and rows that would generate specific desired outputs. Manipulating the pivot tables does not alter the spreadsheet or database itself. Pivot charts are also used together with pivot tables to allow for easy visualization of patterns and trends.

The consolidated database made it possible to derive summary quantitative statistics, such as the proportion of eligible applications and fellowships awarded for each country, as shown in Table 5. It is anticipated that further modification of the database will allow the analysis of qualitative variables as well, such as topical categorization of research projects.

As a basic requirement, the Excel sheets and table must be in a list format and all columns and rows must be named, with no merged cells, and saved without filters on. In terms of qualitative data however, pivot tables lack certain capabilities and require manual work for categorization prior to analysis.

### Summary of progress in each participating university

#### **1. James P. Grant School of Public Health (JPGSPH), BRAC University, Dhaka, Bangladesh**

The TDR scheme enabled JPGSPH to conduct a standard and comprehensive selection procedure with improved outcomes in student selection. The scheme also allowed the university to widen its network of partners and enhance cross-learning in the region through collaboration with GMU in Indonesia. The students supported by TDR at BRAC have participated in IR workshops and a series of seminars to acquire specific IR skills and core competencies, as well as in the formal MPH curriculum.

**COHORT ONE:** The first cohort of 11 Master's students (seven men, four women) started their training in December 2015 with a one-month orientation of the school's learning environment and opportunities. The students were from: Bangladesh (two), Bhutan (one), India (one), Burma (two), Nepal (four) and Yemen (one). As Yemen is actually a part of the Eastern Mediterranean region, its admission was treated as an exceptional case. The students graduated in January 2017.

**COHORT TWO:** In January 2017, ten students (seven men, three women) began their studies, comprising the following geographic distribution: two each from Bangladesh, Myanmar and Nepal, and one each from Bhutan, India, Indonesia and the Philippines. Students graduated in January 2018.

**COHORT THREE (CURRENT COHORT):** In late 2017, there were 160 eligible applications from eight countries in the South-East Asia and Western Pacific regions. Of the 160 candidates, 45% of the applications were from women. Nine candidates (five men and four women) from India, Indonesia, Myanmar, Nepal and the Philippines were offered TDR fellowships and started their Master's programme in January 2018.

## 2. The National School of Public Health, University of Antioquia, Medellín, Colombia

The National School of Public Health, University of Antioquia in Colombia offers students from LMICs in Latin America and the Caribbean a two-year full-time Master's programme in epidemiology with content and emphasis on IR.

**COHORT ONE:** The first cohort of 15 Master's students in epidemiology began in 2016, coming from Colombia (eight), Costa Rica (three), Guatemala (two), Dominican Republic (one) and Ecuador (one) (Table 6). The student research projects addressed IR problems for a variety of infectious diseases of poverty that included dengue (six), tuberculosis (four), malaria (two), helminthiasis (one), trachoma (one) and leishmaniasis (one). Fourteen of these students graduated in February 2018 and returned to their home countries or a Colombian city of origin. One Colombian student graduated in April 2018.

Table 6. Cohort 1 – Applicant characteristics and admitted students (2016–2018)

Characteristic	No.	%
Applications received	78	
<b>Eligible applications (average score of 65% or above)</b>	<b>34</b>	
<i>Colombia</i>	24	70
<i>Costa Rica</i>	3	9
<i>Ecuador</i>	2	6
<i>Guatemala</i>	2	6
<i>Dominican Republic</i>	1	3
<i>Honduras</i>	2	6
<b>Eligible applicants by gender</b>		
<i>Women</i>	22	65
<i>Men</i>	12	35
<b>Students offered admission under the scholarship scheme</b>	<b>18</b>	
<i>Colombia</i>	8	53
<i>Costa Rica</i>	3	20
<i>Guatemala</i>	2	13
<i>Dominican Republic</i>	1	7
<i>Ecuador</i>	1	7
<b>Admitted students by gender</b>		
<i>Women</i>	9	60
<i>Men</i>	6	40

**COHORT TWO:** The university received 53 eligible applications (16 men and 37 women) and offered nine TDR fellowships (three men and six women) for the second cohort which started in August 2018. Students were from Colombia, Dominican Republic, Ecuador, Honduras, Paraguay, Peru, and Venezuela (Table 7). All the students are planning to conduct IR studies in their country of origin, focusing on one of TDR's priority infectious diseases: tuberculosis, malaria, helminthiasis and dengue.

Table 7. Cohort 2 – Applicant characteristics and admitted students (2018–2020)

Characteristic	No.	%
Applications received	57	100%
<b>Eligible applications (fulfil TDR's scholarship criteria)</b>	<b>53</b>	<b>93</b>
<i>Colombia</i>		
<i>Honduras</i>	27	49
<i>Peru</i>	12	21
<i>Ecuador</i>	5	9
<i>Paraguay</i>	4	7
<i>Venezuela</i>	2	3
<i>Dominican Republic</i>	2	3
	1	2
<b>Eligible applicants by gender</b>		
Women	37	70
Men	16	30
<b>Students offered admission under the scholarship scheme</b>	<b>9</b>	<b>17</b>
<i>Colombia</i>	1	11
<i>Honduras</i>	2	22
<i>Peru</i>	2	22
<i>Ecuador</i>	1	11
<i>Paraguay</i>	1	11
<i>Venezuela</i>	1	11
<i>Dominican Republic</i>	1	11
<b>Admitted students by gender</b>		
<i>Women</i>	6	67
<i>Men</i>	3	33

### Lessons learned

- It was possible to eliminate some of the barriers (e.g. application fee) in the call for international applicants from LMICs, and this significantly increased the number and the diversity of applications received.
- New countries from Latin America and the Caribbean were represented in the second cohort, making a total of nine LMICs. Twenty-four students benefited from TDR's Postgraduate Training Scheme in IR since the programme started in 2015.

### 3. School of Public Health (SPH), University of Ghana, Accra

#### Master's students

The university offers a 12-month Master's in Public Health. The programme is designed to provide students with classroom and field training, as well as supplementary workshops and seminars in IR. The first semester focuses on coursework, while the second semester is devoted to research project activities that include proposal development, conducting research, report writing and presentation. Since the inception of the programme in 2015, there have been four cohorts of Master's students.

**COHORTS ONE AND TWO:** The first cohort of nine Master's students (six men and three women) was enrolled in October 2015 and graduated in October 2016. The second cohort of 11 Master's students (six men and five women) started their course of studies in August 2016. One student withdrew soon after admission but was not replaced with another eligible candidate. All students from the first two cohorts have now graduated.

**COHORT THREE:** The six Master's students (three men, three women) from Ghana, Mali, Nigeria, Sierra Leone and Togo started the course on August 2017. Students graduated in November 2018.

**COHORT FOUR (CURRENT COHORT):** The call for applications for cohort four was announced in February 2018 through the TDR and the University of Ghana websites. The review of applications, shortlisting and nomination of candidates was undertaken between April and June 2018 and a review panel from the SPH was set up to assess the applications. Master's programmes included an MSc in Applied Health Social Sciences and a Master's in Public Health. The university received 353 eligible applications (223 men and 130 women). Ten candidates were awarded a TDR scholarship based on merit, nationality and gender (six men, four women). Final selection was completed in June 2018, and the selected candidates started their course in August 2018.

#### PhD students

Since the inception of the programme in 2015, there has been one cohort of PhD students. Five PhD students (four men, one woman) started in January 2016 and expect to graduate by the end of 2019.

### 4. Faculty of Medicine, Gadjah Mada University (GMU), Indonesia

The university offers a 24-month Master's in Public Health in the Special Programme of Implementation Research on Tropical Diseases. The programme curriculum consists of participatory teaching methods, such as mini-lectures, case and field studies, and a course project.

**COHORTS ONE AND TWO:** The first cohort of 16 Master's students (eight men and eight women) was enrolled in December 2015. This commencement date was outside the regular academic calendar of the university and was exceptionally done to allow the initiation of the training scheme. The second cohort of ten Master's students (four men and six women) were from Bangladesh, Bhutan, Indonesia, Nepal and the Philippines, and started their studies in August 2016. Students graduated in July 2018.

**COHORT THREE (CURRENT COHORT):** The third cohort consists of ten students (three men, seven women) from five countries: Bangladesh, Bhutan, Indonesia, Nepal and Papua New Guinea. These students started classes in February 2018 and their planned graduation date is January 2020.

## 5. Faculty of Health Sciences, American University of Beirut (AUB), Lebanon

Since 2015, the Faculty of Health Sciences at the American University of Beirut (AUB) has hosted the TDR scholarship scheme which has allowed for the provision of full scholarships for a Master's in Public Health (MPH) to three cohorts of students totalling 19 students. All the students from the first cohort (four men and five women) and cohort two (three men and three women) have graduated.

**COHORT THREE (CURRENT COHORT):** Four students (one man, three women) enrolled in the MPH programme at AUB in August 2018. The students are expected to complete the programme in a two-year period. Based on their English language test scores, awardees are either exempted from the English course or are required to take English 300. Within this cohort none of the awardees required the English intensive course and all have enrolled directly in the graduate courses starting their first semester.

All TDR students enrol in a specially developed three-credit course on implementation research. After they complete the initial courses on biostatistics, epidemiology, health management and policy, and social and behavioural aspects of public health, they take a three-credit course on quantitative and qualitative research methods in public health. Their practicum consists of 300-hours of practical experience based in a public health institution and is undertaken in their own country to allow them to meet specific national learning objectives and thereby benefit from the work of the hosting public health institution. All arrangements for practicum placement are coordinated by the practicum career counsellor at AUB who organizes the identification of potential sites in their home country in coordination with TDR; communicates with the sites; arranges for their placement; monitors their progress; and overall communicates when necessary with EMRO and other relevant entities.

Each practicum student has a supervisor at the practicum hosting site (preceptor) and an academic advisor at AUB who are in close communication with the student prior to and during the practicum. One-to-one supervision (including telephone calls and email communication) takes place regularly between the advisor and the student during the practicum. The AUB practicum coordinator also makes sure that the process of placement and supervision of the students occurs on a timely basis and reports to the Associate Dean if any issues arise. For the final project, practicum students return to Beirut to present a poster and oral presentation on their project, which is then assessed by an interdepartmental jury representing different public health disciplines.

## 6. University of the Witwatersrand, Johannesburg, South Africa

The university offers two degrees courses in implementation science (IS): 18-month MSc and a 42-month PhD postgraduate training programme.

**COHORT ONE:** The first cohort of eight Master's Students (six men and two women), and two PhD students (both men) started their courses in January and February 2016, respectively. All Master's students have graduated. The two PhD students have finalized their fieldwork and are completing their write-up. One of the PhD students presented his interim seminar in April 2018 and was on course to finish by the end of 2018 (within three years).

**COHORT TWO (CURRENT COHORT):** The second cohort of nine Master's students (five men and four women) started in January 2017 and completed their coursework by the end of 2017. One of the students submitted his research report for examination, five are writing up their final report, and three are still doing fieldwork, due to late submission of their ethics approvals. Cohort 2 candidates were expected to graduate in December 2018.

**COHORT THREE (CURRENT COHORT):** In response to the Cohort 3 call, the university received 42 eligible applications (23 men and 19 women). Five were offered a TDR scholarship (two men and three women) and started their studies in January 2018. The PhD student recruited in 2017 commenced study in February 2018. He has completed the five compulsory courses and presented his research protocol to the school in August 2018. The unspent funds from 2017 are being used in the 2018 academic year, as a result of commencement of study by the recruited PhD candidate in 2018 and replacement of the other 2017 PhD slot by three Master's students in 2018.

## 7. School of Public Health, University of Zambia, Lusaka, Zambia

The implementation research programme is part of a 24-month full-time postgraduate course offered by the School of Public Health through a Master of Science in Epidemiology; Master's in Public Health (MPH) – Health Promotion and Education; and a Master's in Public Health, Health Policy and Management. IR methodology and theory are embedded in the MPH programmes and provide an opportunity for other postgraduate students to gain skills in IR. The TDR-supported students also acquire writing skills for research publications and policy briefs, as well as knowledge translation skills. During fieldwork, TDR-supported students are attached to health institutions or study sites in their home countries.

**COHORTS ONE AND TWO:** The five fellows in cohort one graduated in November 2017. The two fellows in cohort two successfully completed their first-year coursework, their proposals have been approved by the ethics board, data collection and analysis are completed, and they are now writing their reports.

**COHORT THREE (CURRENT COHORT):** In 2018, the call was announced through the university and TDR websites. Out of the 243 applications received, 161 were eligible. Three students from Eritrea, Uganda and Zambia (two men and one woman) received awards. Due to delays in re-opening the programme after a cholera outbreak, dates for the cohort's academic year were postponed to January 2019. This will not, however, affect the cohort's graduation dates, as most academic year holidays will either be shortened or suspended in order to catch up with the normal calendar.

### Leverage created from this project

- IR courses have been institutionalized across seven universities and all students received relevant training in IR. For example, in early 2018, the GMU submitted IR modules for TropEd accreditation<sup>5</sup> to facilitate broader international recognition and efficient credit transfers.<sup>6</sup> An implementation research course has been accredited and two TropEd students attended the course in October 2018. Both the American University of Beirut and the University of Antioquia, Colombia, have integrated the IR courses into their Master's programme.
- The TDR-supported scholarship in BRAC contributed to the development of the Centre of Excellence for Science of Implementation and Scale-Up, which was established in 2016 in collaboration with UNICEF and the JPGSPH. The scheme also benefitted from the patronage of the Ministry of Planning, Monitoring and Evaluation Division in Bangladesh. Similarly, increased recognition of training offered by the School of Public Health at the University of Zambia resulted in an upgrade of the faculty to a School for Public Health in 2018.

<sup>5</sup> TropEd, a network for international education in health, has member institutions in Europe, Africa, Asia, Australia and Latin America. Details can be accessed at: <http://www.troped.org/courses/SPT--FullRecord.php?ResourceId=268>.

<sup>6</sup> European Credit Transfer and Accumulation System (ECTS) are a standard means for comparing the "volume of learning based on the defined learning outcomes and their associated workload" for higher education across the European Union and other collaborating European countries.

- Recognition of the scholarship scheme within WHO programmes has also increased. For example, WHO's Department of Reproductive Health and Research has placed two Master's students using the processes set up for the scheme in Ghana.

### Remaining challenges

- Financial planning for this scheme, as for other TDR schemes, is facilitated by advance knowledge of the amount and timing of anticipated funding. Sustaining the scheme in the next biennium is a major challenge considering TDR budgetary constraints. The financial projections for 2018–2019 reveal reduced funding that will negatively impact the level of support to all participating universities, in terms of numbers of students enrolled and contributions to the development of significant IR capacity.
- Other issues are being addressed, such as: the difficulty of disseminating calls for scholarship to people beyond the capitals; complex visa and residency permit requirements in some countries, such as Lebanon and Indonesia; timing of the ethical review process in the home country and the ethics board's unfamiliarity with IR, causing delays; and supervision of thesis work in the home country (due to limited IR networks and expertise).
- There is a need for systematic marketing of the programme, enhanced collaboration, and the identification of mentors/co-supervisors during the field work.

### Plans for 2019

- In order to harmonize the IR-related training across the seven universities, there will be a two-day workshop in February 2019 to finalize the IR core competencies framework. The framework is currently under development by Dr Alonge and a team at Johns Hopkins University (through an open call competition) with the aim to guide universities in identifying existing gaps in IR curricula.
- The GMU, in collaboration with other universities in the scheme, will create a networking platform to host a community of practice. This will enable both academic staff and students across the seven universities to connect, share, learn and build experience in IR.
- In order to avoid delays on calls for scholarship announcements for the 2020–2021 academic cycles, TDR will start the process of budget planning in early 2019. This will be supported by a one-day, face-to-face meeting with representatives of the seven universities.
- Collaboration with the WHO RTCs and the country and regional offices will be further strengthened to better identify appropriate topics and sites for student fieldwork in their home country.
- In order to improve student mentoring during fieldwork, TDR has encouraged the universities to link up with some senior researchers who have either been facilitators in the SORT IT programme or participated in IR courses.
- Stronger partnerships will be built between RTCs and WHO research departments, such as the Department of Reproductive Health and Research, to strengthen regional capacity.

## Gender Balance

TDR/RCS monitors gender distribution among grant applicants and recipients, with the goal of ensuring gender equity across TDR activities. Out of a total of 178 students undertaking a Master's degree, women represent 48% (92 men, 86 women); among those undertaking PhDs women only represent 13% (seven men, one woman). The challenges for women applying to these scholarships are often associated with starting a family. Two women who applied to the University of Ghana asked to defer their acceptances for this reason.

Notwithstanding the underlying social, cultural and educational factors at country level, there are ways of promoting gender equity – without compromising on quality and merit – that TDR can consider in 2020–2021, for example, including piloting flexible training schemes such as part-time training for women with families.

## Postdoctoral training scheme in implementation research

### Progress in 2018

Postdoctoral training is an important step towards a research career and provides opportunities to develop independent research themes, innovation and mentorship in implementation research (IR) soon after completion of a doctorate degree. In 2015, TDR/RCS established a postdoctoral training scheme piloted at the Noguchi Memorial Institute for Medical Research (NMIMR) at the University of Ghana. The objective is to facilitate the development of a cadre of researchers competent in IR. It was expected to leverage resources available from the SPH (RTC Ghana), and the well-established national research networks of the Ghana Health Service. The scheme provides three fellowships lasting 24 months for nationals of LMICs.

Two calls for application were widely advertised in 2015. Nine applications were received for the first call from five countries: Cameroon (two), Ghana (three), India (one), Nigeria (two) and United Republic of Tanzania (one). Four of the nine were eligible based on the criteria of the call. A pool of reviewers from eight institutions around the world was established by the NMIMR to facilitate selection. From applications received, three applicants (two men, one woman) were recommended for the fellowship. Only two (a man from Cameroon and a woman from Ghana) eventually took up the offer. The fellowships commenced in September 2016.

The response to a subsequent call in 2017 was poor (only four applicants). A third fellow (from Nigeria) was selected from applicants responding to a call published in June 2018, following sensitization to the scheme by the NMIMR and the RTC in Ghana, during the MIM Pan African Malaria Conference.

### Remaining challenges

Interest in postdoctoral training in IR at the NMIMR has been minimal, as evidenced by the low responses to three successive calls for applications. However, the need for a cadre of researchers who are competent in IR remains a real obstacle in Ghana. Current efforts by TDR/RCS to document core competencies in IR will further facilitate a structured training path.

## Plans for 2019

It is not envisaged to continue the pilot beyond the completion of the last fellowship at the end of this biennium. Feedback from the fellows, mentors and scientific leadership and administrators of the programme at the NMIMR obtained during monitoring visits will be documented for lessons learned. TDR will explore opportunities for collaboration with other postdoctoral programmes to foster this level of training in IR.

### **Leverage created from this project**

The short course on IR developed and supported by TDR at the RTC in Ghana has been integrated into the scholarship programme.

**Gender balance:** Two of the three fellows are women and one is a man.

## ER 2.1.3 Research capacity strengthening and knowledge management IMPACT grants to improve disease control

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*This short-term training grant scheme started in 2013 as the IMPACT grant scheme and was designed to help health researchers or research teams in LMICs contribute more effectively to disease control through implementation research. However, due to financial constraints, the scheme was discontinued after the award of the third round of grants in 2015.*

Awards ranging from US\$ 20 000 to US\$ 50 000 were made between 2013–2015, with 94 grants funded to a total value of US\$ 4 107 906. Researchers were funded for work related to infectious diseases of poverty, with a particular emphasis on projects that involved IR, training or acquisition of specific research skills.

An analysis of this grant scheme in 2017 provided an overview of achievements and lessons learned. Achievements included collaborations, presentations, publications, awards, secured further funding, and new projects resulting from the TDR-funded project. Data were drawn from proposals, interim and final reports, and from a questionnaire sent to grantees. The main quantitative outputs were reported in the TDR/RCS 2017 Annual Report. In the current reporting period, the key qualitative outputs and outcomes are presented.

A regional breakdown of the 94 researchers funded through this scheme is as follows: AFR–52; AMR–16, WPR–12, SEAR–11, EMR–two, and EUR–one.

To date, the grant scheme has produced 44 presentations at scientific conferences, 37 publications in peer-reviewed journals, and another 32 manuscripts in submission. A total of 232 collaborations have been reported, 182 with academic institutions and 51 with other stakeholders including local communities, hospitals and other nongovernmental organizations and civil society institutions. Most funded projects targeted malaria or tuberculosis, with the two diseases together accounting for nearly 50% of funds awarded. Support was also provided for capacity-building workshops, which did not address any one disease but rather trained researchers in subjects such as scientific writing, including policy briefs and IR ethics.

Although funding amounts did not have a direct effect on project outputs such as publications and number of trainees, some researchers cited grant size as an impediment while 68% reported that funding was adequate.

Feedback from respondents concerning TDR and the support they had received was highly positive, with many respondents noting that TDR was a key component of overcoming funding challenges

encountered in LMICs. Many expressed concerns about continuity of their research activities and requested TDR to continue the grant scheme, highlighting the difficulty of obtaining similar grants in their home countries or regions.

The main conclusions drawn by analysis of this short-term grant scheme are as follows:

1. Activities that involve group training, such as workshops, produce a high number of outputs and bridge the gap between academics and implementers.
2. Investigators should be familiar with their institution's financial disbursement practices in advance of receiving the grant, as this can help to either anticipate or prevent delays.
3. In advance of planning group training activities, investigators need to be familiar with the schedules of the groups they intend to train.
4. While ethics approval was a concern at the time the grant scheme was being implemented, awardees seem to have viewed it differently as an essential capacity-strengthening effort. Projects requiring ethical approval may actually constitute an opportunity to build grantees' ability to navigate the ethics approval processes, locally and internationally. A proposal development workshop organized by TDR prior to funding was also viewed as an important prerequisite for successful implementation and reporting of grants.
5. The grant scheme as a whole was successful, judging from the research skills acquired, number of scientific articles published, and the recognized contribution to their grantees' career and profile in home institutions.

### Leverage created from this project

Although there was no explicit financial leverage emanating from these grants, awardees and their institutions reported significant in-kind outcomes associated with TDR funding. These included the non-monetary contribution towards researchers' career progression in the form of new job placement or change of position, either within their own institutions or to other institutions. Below are some quotes provided by awardees that serve to illustrate this concept:

*"Winning this grant, especially as a young, woman career researcher in my institution has been a feather on my cap. I was featured in the University's Research Report and it has opened many doors for me. For instance, my request for renewal of appointment was expedited and outright approval given when the appointments board saw the grants I had won, especially this WHO/TDR one. Also, some professors have expressed interest in collaborating with me to apply for other grants. This grant has been very beneficial."*

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*"We did a series of training activities and produced young researchers in health economics. A total of 30 participants were trained; five are pursuing PhD in health economics, 9 are in government offices, three are in USAID, DFID and UNICEF related offices. The rest are in academic and research institutions in Nepal."*

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*"Thanks to the experience and success of the capacity building for implementation research in TB in Viet Nam and with great efforts for the effective implementation of health programmes in Viet Nam, Hanoi University of Public Health has become the unique public health institution in Viet Nam after successful award of the Strengthening Capacity for Implementation Research Initiative (SCAPIR) in 2016, funded by TDR. Implementation research has now been set as one of the most important fields in the Hanoi University of Public Health, both in research and training aspects."*

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*"The National Agency for Food and Drug Administration and Control subsequently adopted the training model funded by TDR and applied it for the training of 600 health-care workers from ten states of the country. This encouraging news clearly demonstrates that the Structured Pharmacovigilance and Training Initiative (SPHAR-TI) model could be applied in similar settings beyond Nigeria."*

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*“The application for presumptive diagnosis of cutaneous leishmaniasis has been sought by other entities including Sanofi and the Damian Foundation and (it) received an award for innovation during the annual meeting of the International Society for Neglected Tropical Diseases.”*

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*“(this grant is linked to) ... reduced delays for TB diagnosis and treatment initiation among suspected TB patients admitted to Beira Central Hospital.”*

### **Gender balance**

Overall, 60% of researchers funded were men, 40% were women. The number of women increased over the three years of the grant scheme.

### **Presentations at conferences**

Chigozie Uneke, Ebonyi State University, Abakaliki, Nigeria. *Promoting evidence-informed policy making through intersectoral action to improve health outcomes in Nigeria: outcome of a two-way secondment model between university and health ministry*, Fifth Global Symposium on Health Systems Research – HSR2018, October 2018, Liverpool, the United Kingdom.

### **Publications:**

Avong, YK, et al. Addressing the under-reporting of adverse drug reactions in public health programmes controlling HIV/AIDS, Tuberculosis and Malaria: A Prospective Cohort Study. *Plos One*, 2018. <https://doi.org/10.1371/journal.pone.0200810> August 22, 2018.

Collins, SK Ahorlu, Daniel Okyere and Edwin Ampadu. Implementing active community-based surveillance-response system for Buruli ulcer early case detection and management in Ghana. *Plos NTD*, 2018. <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0006776>.

Hogarh, Jonathan N, Thomas P. Agyekum, Crentsil Kofi Bempah, et al. Environmental health risks and benefits of the use of mosquito coils as malaria prevention and control strategy. *Malaria Journal*, 2018. <https://doi.org/10.1186/s12936-018-2412-4>.

## **ER 2.1.4 Advanced training in clinical product development: EDCTP/TDR Clinical Research and Development Fellowship (CRDF)**

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*This programme fills the need to enhance capacity of individuals and institutions in LMICs to undertake and manage clinical research that meets international regulatory standards for the development of new diagnostics, drugs and vaccines for infectious diseases of poverty.*

The TDR programme started in 1999 as the Career Development Fellowship (CDF) scheme and was scaled-up in 2008 and 2014, with the support of the BMGF and in partnership with the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA). In 2014, this TDR programme became a joint programme with the European and Developing Countries Clinical Trials Partnership (EDCTP) and the European Federation of Pharmaceutical Industries and Associations (EFPIA), becoming known as the Clinical Research and Development Fellowship (CRDF) scheme.

From 1999 to the end of 2017, a cumulative total of 91 fellows (21 women; 70 men) from 33 LMICs have been placed with 21 partner organizations. All the fellows (apart from one) returned to the home institution and played a pivotal role in a wide range of R&D projects, including trials for new candidate vaccines and drugs. The BMGF has renewed its support in 2018 for a second phase from 2018–2022.

## Progress in 2018

In 2013, EDCTP considered developing a training fellowship programme to would bring together LMIC scientists and clinical staff in pharmaceutical companies and product development organizations in Europe with the aim to strengthen hands-on experience in clinical product development relevant to diseases of poverty. Within its capacity-building efforts, EDCTP collaborated with the EFPIA to offer placements to conduct trials of products that would meet the highest international standards. Since members of IFPMA and EFPIA overlap, EDCTP and TDR decided to develop a joint scheme considering their many similarities in terms of training areas, potential fellows and partners. Progress has been building from the EDCTP/TDR partnership since 2014, when they signed an agreement in March 2014 to harmonize and streamline their activities for mutual benefit.

The EDCTP/TDR partnership allows for the development of a common vision and understanding of the goals and objectives of the fellowship programmes, with strong potential to enhance the capacity of each. Furthermore, the increased number of scientists and clinical staff trained will have a more substantial impact on R&D capacity in LMICs while avoiding duplication of efforts.

The life cycle of a CRDF round lasts three years: one year for the selection of fellows, one year for their training at the host institution, and one year for reintegration into their home institution. The first round of CRDF selection finished with the end of reintegration in Q1–2017. The second consisted of the call and selection in 2015, placement in 2016 and the start of reintegration in 2017. The third round starts with the call and selection in 2016, placement in 2017 and the start of reintegration in 2018.

While some examples of success have been demonstrated, the impact of the CRDF programme needs evaluation. As part of the proposed renewal of BMGF funding support to this scheme in 2018–2022, TDR is conducting an impact evaluation aimed at developing recommendations on optimizing future rounds of funding. The evaluation, being done by the Barcelona Institute of Global Health (ISGlobal), started in 2018 and the planned completion date is November 2018. TDR expects to scale-up the CRDF programme in response to the evaluation findings, and it is expected that the main output will be 30 new highly skilled R&D project managers by 2021.

TDR did not launch any call for applications in 2017 for placement in 2018. However, to ensure continuity of the CRDF scheme, EDCTP proceeded with a launch of a call for applications in October 2017, with the objective to provide funding for a maximum of 15 sub-Saharan African researchers. Given the fact that EDCTP funding can only be allocated to researchers from sub-Saharan Africa, who are to be placed in European-based pharmaceutical companies, contract research organizations (CROs), or product development partnerships (PDPs). Consequently, host organizations offering placements outside Europe, or academic-affiliated research organizations, are not able to host fellows as part of the 2017 EDCTP call.

TDR strongly supported EDCTP during all steps of the 2017 selection process and in placing its fellows in 2018. Four fellows, two from Nigeria, and one each from Guinea Bissau and Kenya, were selected and placed at GSK-Biological, Belgium; Novartis, Switzerland; the European Vaccine Initiative (EVI), Germany; and the International Aids Vaccine Initiative (IAVI), the United Kingdom.

## Results of the second EDCTP/TDR joint selection

Thirty placements have been offered by 20 host institutions including pharmaceutical companies. Six among them are new host partners (EVI, Bayer, Merck Serono, WorldWide Antimalarial Resistance Network (WWARN), IVI and AERAS).

### **Product development partnerships (PDPs)**

AERAS, South Africa  
Drugs for Neglected Diseases initiative (DNDi),  
Switzerland  
FIND, Switzerland  
Medicines for Malaria Venture (MMV),  
Switzerland  
European Vaccine Initiative (EVI), Germany  
Infectious Diseases Research Institute (IDRI),  
the United States  
International Vaccine Institute (IVI), South Korea

### **Academia**

Institute for Health, Luxembourg

### **Pharmaceutical corporations**

Astellas, the United States  
Bayer Health Care Pharmaceutical, Germany  
GlaxoSmithKline-Biologicals, Belgium  
GlaxoSmithKline, the United Kingdom  
Janssen Global Public Health, Belgium  
Julius Clinical, the Netherlands  
Merck Serono, Switzerland  
Novartis Institute for Biomedical Research  
Novartis AG, Switzerland  
Sanofi Pasteur, Mexico

Among the 80 eligible applications received from 23 countries, there were 72 applications (90%) from AFR, five (6.25%) from SEAR, two (2.5%) from AMR and one (1.25%) from WHO EMR. The gender ratio was 20/60 (25% women; 75% men).

At a joint EDCTP/TDR Scientific Review Committee meeting held in Geneva on 12–13 April 2016, eligible applications were reviewed, scored and ranked. As a result, 32 candidates were shortlisted for interviews by the host institutions: 28 (87.5%) from AFRO, three (9.4%) from SEAR and one (3.1%) from AMR, with the following country distribution:

- AFR: Burkina Faso (six); Cameroon (two); the Democratic Republic of the Congo (two); Ethiopia (five); Ghana (one); Kenya (two); Mali (one), Malawi (one); Nigeria (three); South Africa (one); the United Republic of Tanzania (one); Uganda (two) and Zimbabwe (one)
- AMR: Colombia (one)
- SEAR: India (two) and Thailand (one)

The proportion of women to men amongst selected applicants was 8/24 (25% women and 75% men). The women were from Colombia (one), Kenya (two), Nigeria (one), South Africa (one), the United Republic of Tanzania (one), Thailand (one) and Uganda (one).

Thirteen fellows were finally selected and were placed by Q1–2017 in eight training organizations:

- GSK-Biologicals, Belgium (three)
- EVI, Germany (two)
- Institute of Health Luxembourg (two)
- Aeras, South Africa (one)
- MMV and DNDi, Switzerland (one each)
- IVI, South Korea (one)
- WWARN, the United Kingdom (one)
- IDRI, the United States (one)

Two of the fellows were from Colombia and India. The other eleven fellows were from Africa, with the following geographical distribution: Burkina Faso (two), Malawi (one), Nigeria (three), the Democratic Republic of the Congo (three), Uganda (one) and Zimbabwe (one). The gender ratio is 3/13 (23% women) and the women were from Colombia, Nigeria and Uganda.

All fellows selected returned to their respective countries except for one because the university where she came from (University of Gulu, Uganda) did not respect the Letter of Agreement and did not want to guarantee the fellow's position at the end of the placement. Finally, she was selected for a PhD programme in Turku, Finland.

A re-entry plan was developed for all fellows during the last quarter of their placement, in collaboration with the home and the training institutions. The 12-month plan for the majority (6/13) was to implement the good clinical health research guidelines (GCP-GCLP ethics and safety monitoring), 2/13 to implement project management skills, and one to establish a formal quality management system in their own institution. Two fellows developed training modules in data management and implemented them at regional levels by organizing a preconference workshop on good practices in clinical trials data management at the 7th Multilateral Initiative on Malaria (MIM), Dakar, Senegal, April 2018. The workshop was attended by 25 participants from various research centres in LMICs, i.e. Burkina Faso, Cameroon, Côte d'Ivoire, Gabon, Kenya, Mali, Nigeria, Senegal and the United Republic of Tanzania. The last two fellows, who are both from the Democratic Republic of the Congo, enrolled in a course of advanced studies on GCP implementation and quality processes at the University of Geneva. They were particularly interested in gaining skills on quality systems in clinical research in safety aspects of drug development, pharmacovigilance, pharmaco-epidemiology, drug development, and marketing authorization processes. They plan to later disseminate these skills to their respective institutions. Both students obtained a diploma at the end of their studies.

### Results of the third EDCTP/TDR joint selection

A third call for applications for the EDCTP/TDR fellowship was launched on 30 October 2016 with a deadline on 2 February 2017. Thirty-six placements were offered by 19 host institutions, including:

**Pharmaceutical companies:** GlaxoSmithKline, Belgium and the United Kingdom; Janssen Pharmaceutica, Belgium; Julius Clinical, the Netherlands; Novartis Pharma, Switzerland; and Sanofi Pasteur, Mexico

**PDPs:** AERAS, South Africa; DNDi, Switzerland; EVI, Germany; IDRI, the United States; MMV, Switzerland

**Research institutions:** ISGlobal, Spain; Swiss Tropical and Public Health Institute (STPH), Switzerland; and the Network of Pasteur Institutes in Brazil, Cambodia, Cameroon, Madagascar, Senegal, and Viet Nam

Sixty-six applications were received and 51 were eligible. They were from 21 countries; forty from AFR: Burkina Faso (eight), Burundi; Cameroon; Ethiopia (eight); Gabon; Ghana (two); Guinea; Kenya (two); Liberia; Mali (four); Nigeria (three); Tanzania (four); Uganda (two) and Zambia (two). Two fellows from AMR: Argentina and Brazil; two from EMR: Egypt (two), one from EUR: Armenia and six from SEAR: Bangladesh (two) and Nepal (four). The ratio of women/men is 8/43, i.e. 15.6 % women.

The applications were sent to a panel of external reviewers and each application was discussed in depth during a scientific review committee held in Geneva in April 2017. As a result, 29 candidates were shortlisted for interviews by the host institutions: 23 from AFR (79%), four from SEAR (14%) and one each from AMR (3.5%) and EMR (3.5%), with the geographical distribution below:

- AFR: Burkina Faso (five); Ethiopia (four); Ghana (two); Guinea (one) Kenya (two); Mali (four); Nigeria (three); Senegal (one); the Republic of Tanzania (one);
- AMR: Argentina (one)
- SEAR: Bangladesh (three) and Nepal (one)

The gender ratio amongst selected applicants was 4/25 (14% women and 86% men). The women were from Burkina Faso (one), Ghana (one), Nigeria (one) and Senegal (one).

Eighteen fellows were finally selected by eight training organizations: FIND, Switzerland (three); GSK-Biologicals, Belgium (three); EVI, Germany (two); Oswaldo Cruz Foundation (FIOCRUZ), Brazil (one); Institute of Health Luxembourg (one); IVI, South Korea (one), Infectious Diseases Data Observatory (IDDO)/WWARN in Australia and the Lao People's Democratic Republic (four); Institute Pasteur in Viet Nam (one); and STPH, Switzerland (one). They were placed between Q4–2017 and Q1–2018. Among the 18 fellows supported by TDR, 14 fellows were from AFR—eight countries: Burkina Faso (four); Ethiopia (one); Ghana (two); Guinea (one); Kenya (one); Liberia (one); Mali (three) and Senegal (one). One fellow came from AMR (Argentina). Three fellows were from SEAR: Bangladesh (two) and Nepal (one). The gender ratio is 3/18 (22% women) and the women are from Burkina Faso, Ghana and Senegal. Examples of clinical research projects involving the current CRDF fellows are shown in Table 8.

In addition to these examples of clinical research, TDR also supported fellows in the cross-cutting activity of data management. Data sharing platforms offer a unique opportunity to engage and train fellows from LMICs in various fields, such as data management, statistics of complex individual patient meta-analyses, ethics issues related to data sharing and scientific community engagement. In this context, one TDR-supported fellow was involved in the development of a toolkit to increase the support of malaria trialists in LMICS by providing them with tools and resources to enhance the quality and the efficiency of data collection. This would then allow the generation of high quality standardized clinical trial data that is better suited for adherence to regulatory standards and can be easily used to monitor trends in antimalaria resistance. A second fellow participated in the development of standardized data collection for a platform dedicated to future outbreaks of Ebola in Guinea.

### **Network of fellows**

All fellows are enrolled in a professional membership scheme through the Global Health Network. This network is part of an online continuing professional development scheme for clinical trialists working in global health and is supported by the BMGF. The aim is to address the lack of recognition of clinical research as a profession and to encourage career development and training opportunities for all types and levels of researchers and clinical research staff in LMICs. The membership scheme is available via the Global Health Trials website (<https://globalhealthtrials.tghn.org/>). Users post profiles through which their development and skills acquisition are measured and tracked to capture advancement throughout their career. It has 2,345 members.

### **Framework for core competencies in clinical research**

TDR, in collaboration with the Global Health Network (the Centre for Tropical Medicine and Global Health at the University of Oxford) developed a framework applicable to the complete health research team that can be used for recognizing staff competencies by highlighting acquired skills and possible progression between various roles.

Table 8. Examples of clinical research projects involving current CRD fellows

Projects (Clinical development phase)
<ol style="list-style-type: none"> <li>1. Clinical performance of highly sensitive malaria rapid diagnosis test (HS-RDT) in pregnant women in Papua New Guinea.</li> <li>2. Community access to rectal artesunate for malaria (CARAMAL) in three highly malaria endemic countries (Nigeria, Uganda and the Democratic Republic of the Congo).</li> </ol>
<ol style="list-style-type: none"> <li>1. A phase II/III randomised, controlled, open label to evaluate the safety and efficacy of regimens containing bedaquiline and pretomanid for the treatment of adult patients with pulmonary multidrug resistant tuberculosis.</li> </ol>
<ol style="list-style-type: none"> <li>1. A Phase II randomized, controlled, open label study to assess the safety of efficacy of combined treatment of paromomycin in gel formulation and intralesional infiltration of meglumine antimoniate in Cutaneous Leishmaniasis.</li> <li>2. Evaluation of antibody detection test for Visceral Leishmaniasis (VL) diagnosis in Eastern Africa in collaboration with FIND, DNDi HQ and Africa office, Universities of Gondar and of Addis Ababa (Ethiopia), University of Khartoum (North Sudan), Makerere University (Uganda) and the Kenya Medical Research Centre (Kenya).</li> </ol>
<ol style="list-style-type: none"> <li>1. Study on the feasibility of point of contact (POC) lateral flow test for detection of circulating cathodic antigen (CAA) in sera and urine in patients infected with <i>Schistosoma</i>.</li> <li>2. A phase 2, open label, dose finding to assess the efficacy of three formulations of Praziquantel (racemate Praziquantel commercial oral tablets, new oral disintegrating tablets of racemate Praziquantel and L-praziquantel) in Schistosomiasis (<i>S. mansoni</i>) infected children aged 2–6 years old followed by an assessment of efficacy and safety in <i>S. mansoni</i> infected infants aged 3–24 months and children aged 2–6 years infected with <i>S. haematobium</i>.</li> <li>3. A phase 3, open label study to assess the efficacy and safety of L-praziquantel oral disintegrating tablets in schistosoma-infected children aged three months to six years.</li> </ol>
<ol style="list-style-type: none"> <li>1. Prospective evaluation of a dried reagent-based loop-mediated isothermal amplification test (DRB-LAMP) for the diagnosis of Buruli ulcer in Togo.</li> </ol>
<ol style="list-style-type: none"> <li>1. Multicentre, observer-blinded, randomized, active control study to assess safety and immunogenicity phase III study of diphtheria toxoid conjugated Vi-polysaccharide Typhoid vaccine compared to Typbar TCV® in healthy Nepalese subjects.</li> </ol>
<ol style="list-style-type: none"> <li>1. A post-marketing, observational, retrospective cohort study to assess the safety of <i>Refrotrix</i>® (Tdap) when administered during pregnancy in a maternal immunization programme in Brazil.</li> <li>2. A phase IV, observer-blind, randomised, cross over, placebo-controlled, multicentre study to assess the immunogenicity and safety of a single dose of <i>Boostrix</i>® in pregnant women.</li> <li>3. A phase IV, open label, non-randomised, multicentre study to assess the immunogenicity and safety of <i>Infanrix hexa</i>® administered as primary vaccination in healthy infants born to mothers given <i>Boostrix</i>® during pregnancy or post-delivery.</li> </ol>

A digital application has been developed for TDR by the Global Health Network. It was based on the TDR framework for core competencies in clinical research. This includes a competency wheel (<https://globalhealthtrials.tghn.org/competencywheel/>) that visually represents the framework with 50 competencies as well as a competency dictionary which provides details on each competency.<sup>7</sup>

These two core documents are supported by practical implementation tools to support assessment and follow-up of an individual's competencies (<https://globalhealthtrials.tghn.org/competencyradar/>). A competency radar could be used to grade individuals on each of the areas of the competency defined. The grading has been developed in line with the previous tool that the Career Professional Development (CPD) developed for the membership scheme that allows comparison over time and between individuals. The tool provides a mechanism for a research team member to record and track their research skills and experience, so gathering further points as they gain experience. They are awarded a membership and required every year to go through a career review process and update their points. This is an audited and highly robust system that provides ongoing recognition for research staff, accompanied by guidance on how to pilot test and use the framework in practice ([https://globalhealthtrials.tghn.org/site\\_media/media/medialibrary/2016/11/TDR\\_Framework\\_User\\_Guide.pdf](https://globalhealthtrials.tghn.org/site_media/media/medialibrary/2016/11/TDR_Framework_User_Guide.pdf)).

The TDR framework for core competencies in clinical research is now widely used by the fellows to develop and monitor their training plan, in close collaboration with the training and home institutions. During the period between April 2017 and July 2018, it has also been tested as a tool to develop a plan for implementing training activities at home institution during the re-entry plan. Due to the positive feedback received, the use of the TDR framework will be extended to the 18 currently placed fellows to prepare their re-entry plan on their return to the home institution.

Training programmes on research in clinical and product development often focus on investigators and ethics committee members. Training of other stakeholders (e.g. management teams, clinical monitors, and regulatory authorities, medical and allied students) is often neglected. There is also at present a lack of recognition of research as a career, which contributes to low research output and capacities in many LMICs. TDR proposed to map different roles within clinical research teams and the skills needed by each person in their specific role. To this end, TDR commissioned the Global Health Network (Oxford, the United Kingdom) to document the full set of competencies for clinical research professionals to bridge the lack of information about research roles performed in LMIC settings and to provide a means for assessing gaps in training for research personnel.

### **Location of work**

In the second EDCTP/TDR joint selection (2016), 13 TDR fellows were selected, of whom 11 were from six countries in AFR, i.e. Burkina Faso (two), Malawi (one), Nigeria (three), Democratic Republic of Congo (three), Uganda (one) and Zimbabwe (one); one was from AMR (Colombia); and one from SEAR (Nepal).

In the third EDCTP/TDR joint selection (2017), 18 TDR fellows were selected, of whom 14 were from 8 countries in AFR, i.e. Burkina Faso (four), Ethiopia (one), Ghana (two), Guinea (one), Kenya (one), Liberia (one), Mali (three) and Senegal (one); one was from AMR, i.e. Argentina (one); and three were from SEAR, Bangladesh (two) and Nepal (one).

### **Leverage created from this project**

The EDCTP/TDR partnership allows the development of a common vision and understanding of both fellowship programme goals and objectives, with strong potential to enhance the capacity of each. Furthermore, the increased number of scientists and clinical staff trained will have a larger impact on R&D capacity in LMICs while avoiding duplication of efforts.

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<sup>7</sup> See the Global Health Trials website for more details:  
[https://globalhealthtrials.tghn.org/site\\_media/media/medialibrary/2016/11/TDR\\_Framework\\_Competency\\_Dictionary.pdf](https://globalhealthtrials.tghn.org/site_media/media/medialibrary/2016/11/TDR_Framework_Competency_Dictionary.pdf)

Based on documentation received from two pharmaceutical companies, the estimated in-kind contribution for a one-year assignment for one fellow is around US\$ 65 000. This includes the following: mentoring time; conference attendance; relocation agency; two monitoring trips (calculated as cost to Africa, where the trainees' studies are located); public transport; travel to Geneva for mentoring; insurance (site) and miscellaneous costs depending on the location. The total for 30 TDR fellows is US\$ 1 950 000.

For EDCTP, the estimated cost of seven fellows supported during the last three years of selection was US\$ 100 000 for each EDCTP fellow per year of grant and US\$ 122 000 for non-related grant costs (to cover salaries of staff involved in the scheme, travel to participate in scientific review committees and alumni meetings, as well as reviewers' honorarium). The total for the seven EDCTP fellows is US\$ 1 554 000 for three years. The estimated total leverage including contribution from training partners and EDCTP is therefore US\$ 2 952 000.

In its 2018 report, *Money and microbes: Strengthening clinical research capacity to prevent epidemics*, the World Bank recognized the value of the CRDF scheme and IFPMA's role as a leading example of "leveraging the private sector for clinical research capacity development".<sup>8</sup> The report's recommendations on financing clinical research capacity (in general, as opposed to specifically for epidemic prevention) include the following recommendation on private sector contributions:

"By end 2019, the private sector pharmaceutical/biotech industry/clinical research organizations and other health sector businesses operating in LMICs should announce their commitment to maximize their contribution to clinical research capacity in LMICs. This includes transfer of skills and expertise and/or allocating a percentage of their spending to support the development of clinical research capacity in LMICs that is aligned with country public health needs and research agenda".

### Gender balance

Overall the percentage of women awarded fellowships is 22% for the three calls. The issue is not in the selection process but rather in the fact that too few women candidates are applying to this scheme. To identify solutions to this problem, TDR has established a contest challenge, using a practical guide on crowdsourcing in health and health research which provides advice on designing, implementing and evaluation challenge contest for health.<sup>9</sup> Crowdsourcing is an approach whereby a group of non-expert individuals propose solutions to the given problems that individuals are unable to do. One type of crowdsourcing is a challenge contest that has an open call to solicit ideas and strategies from the public. Conventional approaches are generally "top down" and based on expert opinions. The challenge contest is "bottom up" based on expanding the participation of the community. Following this guide, TDR/RCS decided to develop an open challenge contest for expanding women's participation in the CRDF. For this scheme, the challenge is to increase the number of qualified women candidates applying for the scheme, which improves the opportunity for equal consideration and placement to this fellowship.

A call for solutions was disseminated through TDR website and TDR Global (list of previous TDR trainees), social media (TDR Facebook, twitter and LinkedIn). It was announced on 15 May 2018 and has a deadline of 1 July 2018. The call for submissions included a brief text (less than 500 words) explaining the contest (purpose, expectations and rules) and the call featured prizes. The three finalists joined the Women Leaders in Global Health (WLGH) Conference, in London, November 2018,

<sup>8</sup> World Bank. International Vaccines Task Force. 2018. *Money and Microbes: Strengthening clinic research capacity to prevent epidemics*, p. 8. Available at: <http://documents.worldbank.org/curated/en/120551526675250202/pdf/126338-REVISED-27231-IVTF-Report-reduced.pdf>.

<sup>9</sup> For more details on this challenge, see: <http://apps.who.int/iris/bitstream/handle/10665/273039/TDR-STRA-18.4-eng.pdf?ua=1>.

at which TDR and the LSHTM organized a session on “Improving women participation in TDR fellowships”.

A specific website has been developed (<http://www.seshglobal.org/wlghchallenge>) and entries were submitted to an email address. Those received within the specified deadline were initially screened by TDR secretariat to check completeness and eligibility according to the criteria stipulated in the call for applications (focus on the topic; appropriate format). TDR received a total of 311 entries coming from Nigeria (44 entries); Uganda (20); Egypt (15); Kenya (14); India (14); China (13); Bangladesh (ten); Brazil (ten) and Nepal (nine). Among these entries, 282/311 were from women (91%). Due to the success of the challenge contest, LSHTM agreed to support three additional entries to join the WLGH conference in November 2018.

Each eligible entry was judged by three different members of the steering committee (18 members, 16 women and two men) and scored on a scale from 1 to 10. Entry was ranked based on the panel judge scores and the steering committee selected six finalists. TDR supported two women, one from Bolivia one from Myanmar and one man from Kenya. The LSHTM supported two women from Nigeria and one from Uganda. Each participant was notified about their submission and a certificate of recognition has been sent to all the selected entries. A public announcement of the selected entries was made on the TDR website after the conference in London.

Increasing the awareness of the CRDF by using social media and professional women’s organizations and supporting women by developing a mentoring programme for applying to this fellowship, are the two main responses of this challenge contest. A discussion of the entries took place during the conference meeting in London in the presence of the six finalists. TDR will use the summary of selected entries to develop a plan to ensure equal numbers of men and women placement and will implement the recommendations in the next cohort of fellows.

### **Presentations**

Improving women’s participation in the TDR fellowship scheme. Session on Global Health Issues. Women Leaders in Global Health Conference 2018 hosted by the LSHTM, London, November 2018.

### **Publications**

Julé A et al. Developing a globally applicable evidence-informed competency framework to support capacity strengthening in clinical research. *BMJ*, 2017. <https://gh.bmj.com/content/2/2/e000229>.

### **Related news**

<http://www.who.int/tdr/news/2017/tdr-at-world-health-summit/en/>

<http://www.who.int/tdr/news/2017/improving-data-collection-mgx-clinical-trials/en/>

[http://www.who.int/tdr/news/2017/improving-data-collection-mgx-clinical-trials/en/http://www.who.int/tdr/capacity/strengthening/career\\_development/clara-agutu/en/](http://www.who.int/tdr/news/2017/improving-data-collection-mgx-clinical-trials/en/http://www.who.int/tdr/capacity/strengthening/career_development/clara-agutu/en/)

## Joint activities with the TDR Intervention and Implementation Research (IIR) team

### ER 1.1.7 Structured Operational Research and Training Initiative (SORT IT)

*Within TDR, SORT IT is a cross-cutting team activity aimed at strengthening outcome-oriented, policy-relevant operational research capacity in LMIC disease control programmes. It is based on an established partnership of international agencies and incorporates a proven training methodology developed by Médecins Sans Frontières (MSF) and the International Union against Tuberculosis and Lung Diseases (The Union).*

The research and capacity building for this ER are undertaken in a series of three to four workshops within 10–12 months; they are considered of equal importance. Capacity building is integrated with research studies conducted within, and proposed by, disease control programmes. The goal is to build a pool of in-country researchers and catalyse expansion of the initiative in the regions.

In Kenya, SORT IT alumni, in collaboration with the University of Nairobi and Kenyan MoH, successfully completed an innovative national SORT IT course for nine participants (five men and four women) from seven out of 47 counties in Kenya. Thirteen papers were published in the *East African Medical Journal*.<sup>10</sup> The particular features of this initiative were that it focused entirely on the county level in Kenya, and was thus decentralized. It was entirely run by Kenyan SORT IT alumni, highlighting national capacity, and data were sourced from a mobile web-based platform with integrated mechanisms for data validation, and thus used digital technology. This use of digital technology allowed rapid run time (five months) resulting in successful course completion in shorter than standard period. The workshop also provided a learning opportunity for three observers from James Cook University, Australia, as they plan similar RCS activities in Fiji and the Solomon Islands.

Through collaboration with Kenya's MoH, the Master's programme for medical graduates at the Department of Obstetrics and Gynaecology, University of Nairobi, integrated the SORT IT model for thesis projects. The latter utilized under-exploited programme data from disease control programmes. The inaugural cohort involved ten students (four men and six women) who developed ten manuscripts and ten policy briefs currently undergoing peer review for publication in the *Journal of Obstetrics and Gynaecology in East Central and Southern Africa (JOGECA)*. This is an effective manner of introducing operational research to future programme staff and sustaining SORT IT at country level through a fruitful collaboration between academia and the MoH.

In Uganda, the University of Makerere is about to complete a national SORT IT course involving nine participants (six men and three women) with collaboration with SORT IT alumni from the region (South-South collaboration). A total of nine manuscripts are being developed and will be submitted to a national open access, peer-reviewed journal in Q4 2018. In summary, during the current reporting period, in Kenya and Uganda, a total of 27 individuals were trained in operational research, 31 manuscripts were submitted, 22 were published and nine are under peer review. Regional communities of practice, innovative methods of delivering SORT IT, South-South partnerships and fruitful collaboration with academia and the MoH were developed.

<sup>10</sup> Access to these publications is available at: <https://www.ajol.info/index.php/eami/issue/view/16944>.

In Ethiopia, University of Gondar, in collaboration with TDR, WHO/NTD, the WHO country office, and the Institute of Tropical Medicine (ITM), Belgium, is running a pioneering SORT IT programme involving 12 participants (11 men and one woman) who completed 14 draft protocols and a draft viewpoint article on how to transform the thinking on NTDs in line with SDGs. Seven NTDs were covered including visceral leishmaniasis, scabies, Schistosoma, soil transmitted helminths, echinococcosis, trachoma and leprosy. Vulnerable groups (orphans and refugees) were also included to maximize equity. Participants were from four Ethiopian Universities (Gondar, Arba Minch, Bahirdar and Jimma), the Ethiopian Public Health Institute, The Jimmy Carter Center, KalaCORE programme, Amigos Da Silva, Drugs for Neglected Diseases Initiative, the Institute of Tropical Medicine, Belgium and the Center for Operational Research of the Union, and the WHO Country office. The course will be completed in Q1–2019.

### ER 2.1.6 Access and Delivery Partnership (ADP) project

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*This project comprises two activities, one on implementation research (IR) managed by the TDR/RCS team and one on drug safety and pharmacovigilance managed by the TDR/IIR team.*

The optimal introduction of a new technology is critical to favourable health outcomes, and ultimately to the well-being of populations. Large-scale deployment of health technologies may encounter barriers in access, delivery and correct usage in ‘real-life’ and country-specific contexts, particularly within the resource-limited health systems of many LMICs. Failure to identify and address these barriers has implications for the uptake and penetration of the health technology, resulting in considerable cost to the health system.

This expected result is aimed at strengthening the capacity of national institutions and stakeholders to systematically identify and address barriers to the effective introduction and use of health technologies within country contexts. Capacity strengthening in this regard was provided in the framework of IR cutting across delivery, implementation and health systems. The ADP project activities are implemented in collaboration between the UNDP, TDR, the WHO Essential Medicines Programme and PATH. It is a cross-cutting activity in TDR with joint implementation by the RCS unit (ER 2.1.6 IR capacity building) and the IIR unit (ER 1.1.8 Strengthening national programmes capacities for safety monitoring). During the reporting period ER 2.1.6 activities focused on:

1. Countries to identify and address country-specific health system needs for effective access to and delivery of new health technologies;
2. Securing renewal of the grant from the Government of Japan through the UNDP; and
3. Initiating a new phase to scale-up the project and engage three additional focus countries.

#### **Strengthening implementation research capacity in Ghana, Indonesia and United Republic of Tanzania**

**Ghana:** Ghana has always accorded a high priority to health research for its potential impact on population health, as noted in their five-year Health Sector Programmes of Work since 1996. The principal strategic input from TDR during this project was to support development of a research agenda underpinning the Ghana health sector programme of work. As a primary partner with the Research and Development Directorate of the Ghana Health Service, TDR/RCS provided support in developing the agenda which was derived from the health policy of the MoH. The overarching goal of the agenda was to build research capacity in the country in a consistent manner using a seven-step bottom-up process. This process assures national ownership as well as ensuring that the priorities and concerns of stakeholders at all levels are taken into consideration.

A second strategic input was the creation of a pool of experts with the capacity to ask the critical questions and investigate ways to optimize the performance of programmes, interventions and strategies, as well as proposing solutions to identified challenges and barriers. The development of the national health research agenda took place in tandem with a series of national training workshops using the TDR Implementation Research Toolkit. The direct impact of the workshops and training has been the creation of a cadre of policy-makers, health workers and researchers from several regions across the country (50 persons in total) who form a potential resource for scale-up in Ghana, as well as other countries in the region.

The IR capacity-building support provided in this ER has synergized with ER 2.1.1.1: *Strategic support to WHO regional activities – the Regional Training Centres*. The result has been a significant increase in the national ownership of IR, as evinced by the development of proposals to mobilize funding. TDR/RCS is currently supporting the University of Health and Allied Sciences (UHAS, Ho, Ghana), the ADP project partner in Ghana (and satellite of the Ghana RTC) to increase awareness and demand for IR training and resources. The UHAS is also leading the development of a project aimed at identifying and developing plans to address factors critical to effective introduction and uptake of the RTS,S malaria vaccine. This intersectoral project is entirely nationally led and involves the Ghana Food and Drug Administration (FDA), the Ghana MoH, the Attorney General’s Office, the Ministry of Finance, the Ministry of Gender and Social Protection, and the University of Health and Allied Sciences (for coordination). Increased recognition of the relevance of IR and intersectoral collaboration by national stakeholders will facilitate the effective introduction of new health technologies and, in turn, contribute to improved disease control in Ghana.

**Indonesia:** In Indonesia, unique challenges and bottlenecks at the local level occur as unintended consequences of decentralizing health services. These challenges inadvertently impact the effective delivery of health interventions including health technologies. TDR/RCS supported the Directorate General for Disease Prevention and Control (DGDPC) through the National Institute of Health Research and Development (NIHRD) by strengthening capacity to systematically identify and address these challenges through IR. The support to the NIHRD was provided through the Faculty of Medicine, GMU, the ADP partner and the RTC in Indonesia.

RCS supported development of a national strategy for implementation and operational research in Indonesia led by NIHRD (which has the mandate to develop policies for health research in Indonesia), in collaboration with the Faculty of Medicine at GMU. The strategy was widely disseminated in English and Bahasa Indonesia across the MoH, the research community, academic institutions, and development partners to serve as the guiding document to support improvements to the implementation of national disease control programmes. Subsequently, 16 front-line practitioners in regional health teams of three priority programmes (malaria, neglected tropical diseases, and tuberculosis) were trained in the last year of this phase of the project. The training equipped the teams to identify implementation barriers and systematically address them. Examples of the issues identified and being addressed include:

1. Utilization of new diagnostic technology for TB and MDR-TB in Indonesia: The high cost of operations and maintenance, as well as the need for trained personnel, has been identified as a barrier to effective access and delivery of the GeneXpert technology in Indonesia. An IR approach to identify options for increasing the feasibility and effectiveness of technology as the standard rapid diagnostic for MDR-TB technology in health facilities is being developed following the training;
2. Poor early case detection of leprosy: The number of new cases of leprosy detected has levelled-out in the past decade. Following the training, the team will assess the effectiveness of two implementation strategies in improving contact examination and ultimately initiate a change in policy especially in management of leprosy control activities and leprosy stigma reduction in communities; and

3. Compliance of people ingesting antifilarial drugs: The distribution coverage of antifilarial drugs is not representative of community compliance/adherence to taking antifilarial drugs in some remote islands. This gap in drug access, delivery and health impact has implications for the MDA strategy underpinning lymphatic filariasis (LF) elimination. Following the training, the team will use an IR approach to address this gap. The approach will engage drug distributors, health personal and policy-makers to determine how to increase compliance.

Sixteen participants (eight women and eight men) from the regional health directorates, research institutes and a teaching hospital identified these issues and developed the plans to address them using the TDR Implementation Research Toolkit as the main resource.

**United Republic of Tanzania:** RCS work focuses on further strengthening existing national capacities to conduct IR in priority areas. To achieve this, the interventions are based on the objectives of:

1. Strengthening national capacity to systematically address barriers to and bottlenecks in the effective use of health technologies;
2. Supporting the MoH in developing a priority list of research areas to improve the effectiveness of disease control tools and technologies; and
3. Ensuring that policy-makers and in-country partners recognize the value and importance of IR.

RCS supported the development of the national agenda for health research to consolidate and coordinate existing efforts to identify and address bottlenecks in disease prevention and control. During this phase of the project, ADP trained 51 mid- and senior-level researchers, implementers and policy-makers. As a result of the support, national research teams developed plans to address specific bottlenecks encountered by malaria, TB and NTD control programmes. A second significant outcome of TDR/RCS support is an intersectoral effort led by the National Institute for Medical Research (NIMR), to identify implementation gaps which need to be addressed for the effective introduction and uptake of a paediatric formulation of praziquantel for control of schistosomiasis in United Republic of Tanzania. This intersectoral project coordinated by the NIMR involves the Tanzania Food and Drugs Authority, the Medical Stores Department, the Pharmaceutical Services Unit, the Neglected Tropical Diseases Control Programme and the Reproductive and Child Health Section of the Ministry of Health.

### ***Update of the TDR Implementation Research Toolkit***

At the global level, this expected result complements other RCS efforts to strengthen IR capacity in LMICs and to expand the use of IR approaches, tools and mechanisms for improved population health. The toolkit was developed under the aegis of the Access and Delivery Partnership (ADP) project and has been updated to be more comprehensive and accessible. It is designed to build on the TDR MOOC on Implementation Research and help IR teams develop and execute projects aimed at identifying and addressing barriers to the effective implementation of health programmes including, strategies, policies, interventions and technologies.

The TDR Implementation Research Toolkit<sup>11</sup> is available online in French and English and comprises the following seven modules:

1. Introduction to implementation research
2. Understanding implementation research
3. Developing an implementation research proposal
4. Research methodologies and data management

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<sup>11</sup> The French toolkit is accessed at: <http://adphealth.org/irtoolkit/fr/>; English: <http://adphealth.org/irtoolkit/>.

5. Planning and executing an implementation research project
6. Communicating implementation research findings and feedback into the health system
7. Integrating implementation research into the health system

In the first six months following the launch on the website, there were 2,019 unique users of the online version, from 26 countries (18 from LMICs) and 3,742 unique sessions.

The toolkit was rated as fourth in a list of the ten best resources for community engagement in implementation research. The online version has been made available on websites serving the IR community such as Improving Community Health Outcomes through Research and Dialogue (iCHORD).<sup>12</sup>

### Remaining challenges

The current phase of the project from 2018–2022 is funded for an initial period of 12 months (April 2018–March 2019). Funding for the subsequent three-year period is contingent on output in the first year. TDR is working closely with the UNDP to ensure optimum implementation especially in Senegal, Malawi and India, i.e. the three additional selected target countries.

## Strategic activities

### Mapping activities to strengthen research capacity

The TDR/RCS team has taken the first step in promoting a systematic approach to mapping externally funded activities to strengthen research capacity. In collaboration with the EDCTP, externally funded international postgraduate training at institutions in sub-Saharan Africa were mapped. A paper entitled, “Mapping of externally funded international postgraduate students in health research at institutions in sub-Saharan Africa, 2012–2017”, describing this joint EDCTP/TDR mapping was published in *Globalization and Health* in 2018 (<https://rdcu.be/3Q5D>). It has been circulated to all the agencies which were initially contacted at the start of the mapping exercise, to stimulate a discussion on how the substantial external funders of research capacity-strengthening activities can collaborate in putting this sort of mapping on a systematic footing.

### Promoting IR in countries receiving Global Fund grants

Building on the previous policy work with the Global Fund to promote IR in countries receiving Global Fund grants, the RCS Coordinator represented TDR on the WHO – Global Fund advisory group, which developed the Strategic Framework for Collaboration between the Global Fund and WHO. The framework, which was signed on 11 October 2018, recognizes the role of IR and provides a firm basis for ongoing work in TDR to promote funding of SORT IT activities on malaria and TB in countries as part of their Global Fund grants.

<sup>12</sup> The iCHORD website is developed as a resource for front line health workers and supervisors at the community level. For more information on iCHORD see <https://ichord.org/resources/>.

## **Adding value to the WHO guideline development process by developing a global public health research agenda**

Building on the previous policy work with the WHO Guideline Review Committee,<sup>13</sup> the RCS Coordinator is working with the WHO Observatory on Global Health R&D to develop a directory of research needs identified from the systematic reviews conducted as part of the guideline development process.

### **Theory of change for TDR/RCS activities**

The Capacity Research Unit at the Liverpool School of Tropical Medicine led a workshop in Geneva in October 2018 for the TDR Research Capacity Strengthening team to develop a theory of change for the TDR/RCS activities. The workshop will also pave the way for the development of a higher-level theory of change for the combined work of TDR, the Special Programme on Reproductive Health Research (RHR) and the Alliance for Health Policy and Systems Research (AHPSR).

## **Budget and financial implementation**

### **2018 costed plan**

There has been a high level of completion of RCS technical activities, with correspondingly high financial implementation rates (Table 9). The high rate of financial implementation regarding the postgraduate training scheme arises from, firstly, the frontloading of funds transferred to the universities participating in the scheme to cover the cost of fellowships awarded before the start of each respective academic year. Secondly, it stems from the continuation of planned activities as agreed in the letters of agreement with the universities.

### **2018–2019 costed plan**

The levels of funding to implement the RCS activities were initially set out in the 2018–2019 costed plan (under US\$ 40 million and US\$ 50 million scenarios), which was reviewed and approved by the Scientific and Technical Advisory Committee (STAC) in March 2017 and the Joint Coordinating Board (JCB) in June 2017 (Table 10).

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<sup>13</sup> See D Maher, N Ford. A public health research agenda informed by guidelines in development. *Bulletin of the World Health Organization*, 2017; 95: 795–795A.

Table 9. Approved Programme Budget 2018–2019 and 2018 funds utilized (preliminary results)

Expected result	Research Capacity Strengthening (RCS)	2018 progress									Towards 2019		
		\$40m budget scenario			Funds utilized as at 31 December 2018			implementation rate			Revised planned costs at January 2019		
		UD	DF	Total	UD	DF	Total	UD	DF	Total	UD	DF	Total
2.1.1.1	TDR support to regional training centres	1 030 000	200 000	1 230 000	607 029		607 029	59%	0%	49%	1 400 000		1 400 000
2.1.2	Targeted research training grants (MSc, PhD)	3 050 000	500 000	3 550 000	2 824 496		2 824 496	93%	0%	80%	5 700 000		5 700 000
2.1.4	Career development fellowship grants	20 000	2 400 000	2 420 000		1 515 051	1 515 051	0%	63%	63%	0	3 638 247	3 638 247
2.1.6	Structured capacity building in IR (renewal of UNDP Access Initiative) joint with IIR		1 000 000	1 000 000		126 692	126 692		13%	13%	0	462 078	462 078
	<b>Total</b>	<b>4 100 000</b>	<b>4 100 000</b>	<b>8 200 000</b>	<b>3 431 525</b>	<b>1 641 743</b>	<b>5 073 268</b>	<b>84%</b>	<b>40%</b>	<b>62%</b>	<b>7 100 000</b>	<b>4 100 325</b>	<b>11 200 325</b>

Table 10. Proposed programme budget and workplan 2020-2021

Expected result	Research Capacity Strengthening (RCS)	\$40M Scenario			\$50M Scenario			
		UD	DF	Total	UD	DF	Total	
2.1.1.1	TDR support to regional training centres	1 050 000	200 000	1 250 000	1 230 000	200 000	1 430 000	
2.1.2	Targeted research training grants (MSc, PhD)	3 050 000	500 000	3 550 000	6 050 000	700 000	6 750 000	
2.1.4	Career development fellowship grants		2 400 000	2 400 000		20 000	2 400 000	2 420 000
2.1.6	Structured capacity building in IR (ADP Initiative)		1 000 000	1 000 000		1 000 000	1 000 000	1 000 000
	<b>Total</b>	<b>4 100 000</b>	<b>4 100 000</b>	<b>8 200 000</b>	<b>7 300 000</b>	<b>4 300 000</b>	<b>11 600 000</b>	

## Funding by project

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
B80007		F	Ligia Gomez	Coordination and Writing of Publication on the Development and Dissemination of the TDR Effective Project Planning and Evaluation Course	2 450	USA
B80016		F	Edith Certain	Expenses related to the work to be undertaken for the MOOC as stated in the TORs	35 280	France
B80028		F	Alvarado Wu	To review and layout of the GHRP material	7 000	France
B80033	Daniel Reidpath	M	Monash University Malaysia Sdn Bhd	To cover the work to be undertaken by Dr D. Reidpath with relation to the MOOC	7 500	Malaysia
B80059	Maria Isabel Chavarria M	F	CIDEIM	Management of the 2018 Latin America session of the TDR MOOC on IR	5 000	Colombia
B80059	Maria Isabel Chavarria M	F	CIDEIM	Management of the 2018 Latin America session of the TDR MOOC on IR	5 000	Colombia
B80088	Valerie Louis	F	Valerie Louis	Translation fees of the MOOC on IR	2 500	Germany
2018/813768	Russel Holley	M	Artifex Creative Webnet Ltd - ACW	Design and layout a training manual for the ethics in implementation research	16 529	UK
B80035	Olakunle Alonge	M	Johns Hopkins University	To develop a framework of core competencies on implementation research with a focus on infectious diseases of poverty in LMICs	80 823	USA
B80038		F	Lisa Schwarb	To cover expenses related to the preparation and layout of the TDR-MOOC flyers in 7 languages	1 200	Switzerland
B40101	Phyllis Dako-Gyeke	F	University of Ghana	Health Research Regional Training Centre in the WHO African Region	97 150	Ghana
A90403	Yodi Mahendradhata	M	Universitas Gadjah Mada	Regional Training Centre for Health Research, South-East Asia	98 974	Indonesia
A90402	Andres Jaramillo	M	CIDEIM	TSA with the Regional Training Centre	100 000	Colombia

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
A90399	Bakhyt Sarymsakova	F	Regional Training Centre in Health Research	TSA with Regional Training Centre in Astana	100 000	Kazakhstan
B40189	Wafa Kammoun	F	Institut Pasteur de Tunis	Regional Training Centre for research	100 000	Tunisia
B40086	Bouke de Jong	M	Instituut Voor Tropische Geneeskunde	Training Grants 2014 Fellow Dr Bassirou Diarra for PhD at the University of Antwerp	17 000	Belgium
B80066	Robi Rasco	M	Biomed Central Ltd	The costs of open access publishing charge of the article written by Dr Dermot Maher and Miss Terra Morel	2 244	UK
B40302	Yodi Mahendradhata	M	Universitas Gadjah Mada	Financial support to the University of Gadjah Mada towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on IR	166 000	Indonesia
B40300	Richard Adanu	M	University of Ghana	To manage TDR International Postgraduate Training Scheme	366 451	Ghana
B40316	Charles Michelo	M	University of Zambia	To manage TDR International Postgraduate Training Scheme	20 000	Zambia
B40297	Malabika Sarker	F	BRAC University	To manage TDR International Postgraduate Training Scheme (no cost extension)	128 571	Bangladesh
B40323	Carlos Rojas	M	Universidad De Antioquia	To manage TDR International Postgraduate Training Scheme	289 424	Colombia
B40302	Utarini	F	Universitas Gadjah Mada	To manage TDR International Postgraduate Training Scheme	79 940	Indonesia
B40299	Latifat Ibisomi	F	The University of The Witwatersrand	To manage TDR International Postgraduate Training Scheme	246 909	South Africa

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
B40300	Richard Adanu	M	University of Ghana	Financial support to the University of Ghana towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	306 200	Ghana
B40304	Rosie Naser	F	American University of Beirut	Financial support to the American University of Beirut towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	257 000	Lebanon
B40297	Malabika Sarker	F	BRAC University	Financial support to the James P. Grant School of Public Health, BRAC University towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	163 000	Bangladesh
B40299	Latifat Ibisomi	F	The University of the Witwatersrand	Financial support to the University of Witwatersrand towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	270 000	South Africa
B40316	Charles Michelo	M	University of Zambia	Financial support to the University of Zambia towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	120 000	Zambia
B40323	Carlos Rojas	M	Universidad De Antioquia	Financial support to the Universidad de Antioquia towards the implementation of the project "TDR-supported Postgraduate Training Scheme with a focus on Implementation Research"	218 250	Colombia
B40304	Jocelyn Dejong	F	American University of Beirut	To manage TDR International Postgraduate Training Scheme	87 218	Lebanon
B40154	Francine Ntoumi	F	Fondation Congolaise Pour La	Assessing the application of current national	4 998	DRC

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
			Recherche Medicale	policies for Tuberculosis control in the main prison of Brazzaville to provide evidence for the need to intensify TB control activities for prisoners		
B40137	Horacio Cadena	M	Fundacion Universidad De Antioquia	Evaluation of a vector control strategy in the peri-urban area of the Municipality of Sheep – Colombia	5 000	Colombia
B40145	Siriwan Grisurapong	F	Mahidol University	Knowledge management and operational research in application of mobile technology to prevent and control of Malaria in Burmese migrants at Kanchataburi province, Myanmar-Thai Border	4 945	Thailand
B80014	Nuria Casamitjana	F	Barcelona Institute for Global Health	To undertake an "evaluation of the EDCTP and TDR (CRDF)	160 000	Spain
B80031		F	Wei Shufang	Expenses related to the work on "Open Challenge Contest for Expanding Women's Participation in Clinical Research and Development Fellowship"	7 500	China
B80051	Janine Burke	F	Oxford University	Capacity Mapping and Re-entry Planning for the TDR (CRDF)	54 000	UK
B80051	Holly Blades	F	Oxford University	Capacity Mapping and Re-entry Planning for the TDR (CRDF)	27 106	UK
B80095		F	Clara Atieno Agutu	Costs of the activities related to developing mentorship activities for women applying to the EDCTP-TDR (CRDF)	2 100	Kenya
B70099		M	Hamma Ibrahim Maiga	One year stipend for CRDF	55 400	Mali
B70098		F	Fassiatou Tairou	One year stipend for CRDF	55 400	Senegal
B70094	Moussa Niangaly	M		One year stipend for CRDF	55 400	Mali
B60077		M	Mukendi Melchias Ilunga	Reintegration plan for CRDF	17 378	DRC

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
B70081		M	Amadou Barry	One year stipend for CRDF	45 799	Mali
B70082		F	Fridah Kanyiri Mwendia	One year stipend for CRDF	45 799	Kenya
B70098		M	Vicco Miguel Hernan	One year stipend for CRDF	45 799	Argentina
B70091		M	Mohammad Sharif Hossain	4 months stipend for CRDF	16 000	Bangladesh
B70090		M	Dominic Dziedzo De Souza	One year stipend for CRDF	55 400	Ghana
B70095		F	Ewurama Dedeo Owusu	One year stipend for CRDF	55 400	Ghana
B70097		M	Paul Sondo	One year stipend for CRDF	50 400	Burkina Faso
B70088		M	Coulibaly Sam Aboubacar	One year stipend for CRDF	55 400	Burkina Faso
B60080		M	Didier Nzolo Bomene	To cover extension of three (3) months for CRDF	10 303	DRC
B70092		M	J.M. Kabore	One year stipend for CRDF	55 400	Burkina Faso
B60087		M	Clifford Banda	To cover insurance premiums payment for CRDF	1 056	Malawi
B70087		M	Mohamoud Sama Cherif	To cover 6 months of stipend for CRDF	28 400	Japan
B70069		M	Birendra Prasad Gupta	To cover 6 months of stipend for CRDF	28 000	Nepal
B60081	Odile Leroy	F	CIDEIM	To cover reintegration plan for CRDF	24 950	Colombia
B60085		M	Jerry Liwono Yana	To cover reintegration plan for CRDF	17 072	DRC
B70089		F	Noubar DAH	To cover 1 month stipend for CRDF	5 000	Burkina Faso
B60091		F	Atinuke Olaleye	To cover reintegration plan for CRDF	25 000	Nigeria
B60083		M	Babatunde Adeagbo	To cover reintegration plan for CRDF	25 000	Nigeria
B70096	Cara Dyson	F	Worldwide Insurance Services Db Hth Worlwide	To cover insurance premium for CRDF	1 715	USA
B60087	Holly Blades	F	University of Oxford	To cover reintegration plan for CRDF	11 000	UK
B60085		M	Jerry Liwono Yana	To cover insurance premium	386	DRC
B60095		F	Anne Abio	Stipend for 2 months for CRDF	8 000	Uganda

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
B60091		F	Atinuke Olaleye	Costs of excess luggage	442	Nigeria
B60087		F	Penda Toure	To cover reintegration plan for CRDF	4 000	Senegal
B60087	Chidiwa Jere Khuzwayo	M	Malawi Liverpool Wellcome Trust Clinical Research Programme	To cover reintegration plan for CRDF	9 280	Malawi
B70086		M	Kelemework Adane Asmare	To cover 6 months of stipend for CRDF	29 900	Ethiopia
B70089		F	Noubar Dah	One year stipend for CRDF	51 400	Burkina Faso
B70091		M	Mohammad Sharif Hossain	Insurance premium & visa expenses for CRDF	1 364	Bangladesh
B60073		M	Shaikh Mohammed Hanif	To cover reintegration plan for CRDF	25 000	India
B70096		M	Prakash Ghosh	To cover 1 year CRDF	54 900	Bangladesh
B60090		M	San Maurice	To cover reintegration plan for CRDF	25 000	Burkina Faso
B60076		M	Debe Siaka	To cover reintegration plan for CRDF	25 000	Burkina Faso
B70091		M	Mohammad Sharif Hossain	To cover stipend for 8 months	37 900	Bangladesh
B60084		M	Evaezi Okpokoro	To cover reintegration plan for CRDF	25 000	Nigeria
B60080		M	Didier Nzolo Bomene	To cover reintegration plan for CRDF	25 000	DRC
B70069		M	Birendra Prasad Gupta	Costs of 3 month extension of CRDF	12 000	Nepal
B60095		F	Anne Abio	To cover reintegration plan for CRDF	25 000	Uganda
B80089		M	Allan Odhiambo	Visa costs	356	Kenya
B70081		M	Amadou Barry	3 month stipend for CRDF	9 600	Mali
B70099		M	Hamma Ibrahim Maiga	Miscellaneous costs	462	Mali
B70099	Michele Schmitt	F	Universite De Luxembourg	Rent costs for CRDF	1 422	Luxembourg
B40368	Mme Zufferey	F	Mutuelle Assurance Maladie Sa	Payments for medical insurance for Career Development Fellow, Dr Belay Tessema BELAY	341	Switzerland
B40461	Mme Zufferey	F	Mutuelle Assurance Maladie Sa	Payments for medical insurance for Career Development Fellow, Dr Birkneh Tadesse	65	Switzerland

Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
2018/875176	Shufang Wei	F	Shufang Wei	Expenses for the dissemination and promotion of the TDR CRDF programme	2 050	China
B40184		?	Oxford University	Funding support for "The Development of a functional professional membership scheme dedicated to the TDR Career Clinical Research & Development Fellows	40 000	UK
B80065	Margaret Gyapong	F	Institute of Health Research-UHAS	Stakeholders meeting to develop an integrated work plan for the delivery and uptake of new or improved medical interventions in the Ghana health system. Access and delivery Project (Scale up Phase)	12 900	Ghana
B80021		F	Valerie Louis	Editorial Services for updating the TDR Implementation Research Toolkit	7 500	Germany
B80025		F	Opemipo Koshemani	Editorial services (proof reading) in the development of the revised version of the TDR Implementation Research Toolkit	3 512	UK
B80019		F	Edith Certain	Editorial Services in the development of the French version of the TDR Implementation Research Toolkit	4 013	France
B80064		M	Temituoyo Okorosobo	Facilitate a stakeholders meeting for the development of an integrated workplan in respect of the delivery and uptake of new or improved medical interventions in the Ghana health system	5 800	Nigeria

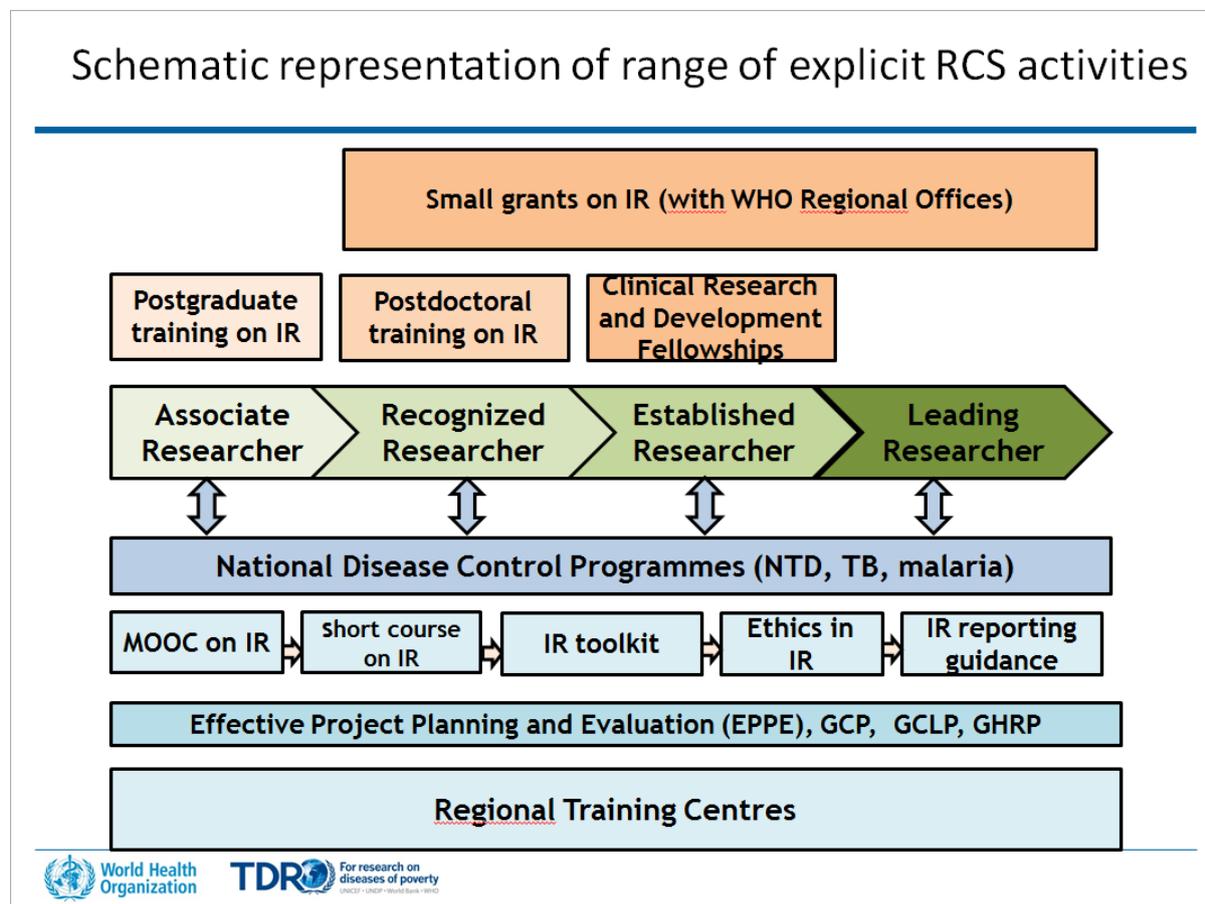
Project ID	Principal investigator	PI gender	Supplier name (Institution)	Project title	Funding in US\$	Countries involved
B80078	Paul Erasto Kazyoba	M	National Institute for Medical Research	Organization of "Stakeholders' consultative workshop to develop a work plan for the delivery and uptake of new or improved medical interventions in the Tanzanian health system	9 000	Tanzania
B80083		F	Margaret Gyapong	Facilitate a stakeholders' meeting to develop an integrated workplan for the delivery and uptake of new health technology in Tanzania" ADP Scale up phase	1 500	Ghana
B80083		M	Temituoyo Okorosobo	facilitate a stakeholders' meeting to develop an integrated workplan for the delivery and uptake of new health technology in Tanzania" ADP Scale up phase	3 300	Nigeria
B80082		M	Lester Chitsulo	To support UNDP/WHO/TDR/PATH Access and Delivery capacity strengthening Project (ADP) in Malawi	10 000	Malawi
2018/863744	Youssoupha Ndiaye	M	Direction De La Planification De La Recherche Et Des Statistiques (DPRS)	Costs of a 2 day stakeholder consultation meeting	11 323	Senegal
B40128	Simon P. Sawadogo	M	Institut De Recherche En Sciences De La Sante (Project IRSS)	Internal use only Target mosquito swarms to estimate malaria risk transmission	5 000	Burkina Faso
B40155	Adamu Addissie Nuramo	M	Addis Ababa University	Nuramo -Promoting the Rapid Ethical Assessment (REA) approach to enhance ethical conduct of NTD research in Ethiopia	4 955	Ethiopia
B40152	Alberto Mendoza-Ticona	M	Union Internacional Contra La Tuberculosis Y Enfermedades Respiratorias	Assessment of the operational implementation, clinical outcome and cost-effectiveness of Line Probe Assay to detect MDR-TB in Peru	4 345	Peru

## TDR funding in 2018

CONTRIBUTOR	
<b>Core contributors</b>	<b>Amount (US\$)</b>
Sweden	5 037 631
United Kingdom of Great Britain and Northern Ireland (UK)	4 246 657
Switzerland	1 654 965
Luxembourg	1 157 407
World Health Organization	1 100 000
Germany	875 798
Belgium	707 547
Norway	357 270
Japan	200 000
Thailand	93 291
China	55 000
India	55 000
Malaysia	25 000
Mexico	20 000
Panama	7 000
Turkey	5 000
Miscellaneous	1 009
<b>Sub-total</b>	<b>15 598 577</b>
<b>Contributors providing specific project funding</b>	<b>Amount (US\$)</b>
Bill & Melinda Gates Foundation	1 968 153
National Institute for Health Research (NIHR), UK	1 494 204
United Nations Development Programme (UNDP)	1 061 400
U.S. Agency for International Development (USAID)	697 175
Sweden	546 249
Swiss Development Cooperation Agency (SDC/DDC)	508 048
Luxembourg	115 741
Other	65 830
<b>Sub-total</b>	<b>6 456 799</b>
<b>TOTAL CONTRIBUTIONS</b>	<b>22 055 376</b>

*The contribution from the Government of Sweden reflects the 2018 portion of their 2018-2019 funding agreement.*

## Appendix 1. Schematic representation of range of explicit RCS activities



## Appendix 2. Full list of suggestions made by the Scientific Working Group in 2018

Overall, the SWG commended the RCS team for the progress made on the range of high-quality activities, regarding complementary training programmes and tools, which are effectively and efficiently managed. The SWG recommended continuation of implementation of the RCS activities that were reviewed, as set out in the current biennium (2018–2019) workplan and budget, in close collaboration with the relevant WHO departments and regional offices and other key partners. The SWG commended RCS on the favourable proportions of undesignated (50%) and designated (50%) funds in the 2018–2019 budget. The SWG also supported overall the ongoing and planned range of activities set out according to the 2020–2021 biennium workplan and budget.

### ***Cross-cutting activities***

Regarding the impact of TDR's RCS schemes, including the postgraduate training scheme, the SWG advised TDR to continue developing approaches to monitoring TDR's contribution across the range of its RCS schemes to career development, for example through career tracking by TDR Global.

### ***Access and delivery partnership (UNDP)***

Overall, the SWG commended TDR on renewal of the ADP project funding from UNDP for activities in the 2018-2019 biennium, and recommended continued RCS participation in the ADP project in collaboration with the TDR Research for Implementation team, in working towards implementation of activities in 2019 and beyond.

#### *Specific suggestion:*

- Clarify the relationship of the TDR activities under this project to the health technology assessment activities, mainly conducted by PATH and EMR in the selected countries, and explore potential engagement of other relevant partners.

### ***RTCs supported by TDR***

Overall, the SWG commended the progress made in implementing the 2018–2019 biennium workplan and budget. The SWG approved the 2019 workplan and budget of the RTCs for AFR, AMR, EMR, EUR and SEAR and suggested deferred approval of the RTC in WPR (Research Institute for Tropical Medicine) until after revision and resubmission.

#### *Specific suggestions:*

- In developing each centre's sustainability plan, continue to identify potential resources in the countries where there is a satellite site.
- Continue to develop the networking functions and activities.
- Explore opportunities to translate the materials to other languages such as Portuguese.

### ***Massive Open Online Course (MOOC) on IR***

The SWG commended the progress in implementing the MOOC involving a wide range of partners in uptake.

#### *Specific suggestions:*

- Continue to promote dissemination of the MOOC through: a) the RTCs and their satellite institutions, b) the universities participating in the TDR postgraduate training scheme, c) institutionalization of the MOOC in universities as an accredited course, and d) consideration of translation to other languages (e.g. French, Portuguese and Chinese).
- Continue to ensure quality control through feedback from participants and periodic evaluation.

### ***Framework for core competencies in implementation research***

The SWG commended the RCS team on progress in developing the IR core competency framework.

#### *Specific suggestions:*

- Ensure the competencies are applicable for a range of training courses and for participants with varying degrees of expertise.
- Continue to liaise with key partners, e.g. RHR and AHPSR, and explore with Health Systems Global the possibility of a session during the next Health System symposium (in 2020 in Dubai, organized in collaboration with AUB, Lebanon).
- Continue to involve all the universities participating in the Postgraduate Training Scheme and the RTCs in the development and dissemination of the framework, which can be adapted to courses and used for their accreditation.

### ***Structured Operational Research and Training Initiative (SORT IT)***

Overall, the SWG commended the RCS contribution to SORT IT, in collaboration with the TDR Research for Implementation team, and recommended continued support for this activity.

### ***Clinical Research and Development Fellowship (CRDF) scheme***

The SWG commended the RCS team on successful renewal of US\$ 6.7 million funding from the BMGF for 2018-2022 and recommended continued support by TDR for this scheme, as it moves into its current phase of evaluation in 2018 followed by resumption of award of fellowships by TDR in 2019. The SWG commended the steps taken to promote gender equity, including the challenge contest and the implementation of the measures identified in the call issued in November 2018.

#### *Specific suggestions:*

- Continue to identify and implement measures to promote gender equity.
- Continue to promote the success of the programme by showcasing CRDF outcomes and by demonstrating how the scheme responds to regional trainings needs, e.g. as identified through the evaluation.
- Clarify the value of the EDCTP/TDR joint venture.
- Explore opportunities to involve well developed clinical research sites.

### ***TDR Global Engagement activities***

Overall, the SWG recommended continued support of the Global Engagement activities set out in the 2018-2019 biennium workplan and budget. The SWG welcomed future review of these activities and advised TDR to explore potential links between Global Engagement and RCS activities. Potential options that emerged from discussions during the SWG meeting included using the small grants scheme to fund research activities proposed by researchers completing the MOOC, and to provide re-entry grants to Postgraduate Training Scheme fellows on completion of their master's degree.

### ***Postgraduate training scheme***

Overall, the SWG recommended continued support by TDR of the Postgraduate Training Scheme activities set out in the 2018-2019 biennium workplan and budget. The SWG congratulated the secretariat on the improvements in the review process, involving iterations between each participating university and the secretariat prior to the SWG meeting.

#### *Specific suggestions:*

- Continue to work with the participating universities to: a) improve their field mentorship programmes, b) promote institutionalization of implementation research, c) consider gender and geographic representation in selecting fellows, d) encourage networking among the seven universities, e) strengthen institutional capacity, including administrative capacity, f) refine the approach to M&E by ensuring relevant indicators in the M&E framework and improving the reporting template, and g) consider a plan (if funding is available) for increased collaboration between the university and the fellow's home institution if relevant.
- Consider opportunities (depending on funding availability and sources) not only to scale-up the numbers of fellows trained in line with TDR's focus of on implementation research on infectious diseases of poverty, but also to adapt the scheme to be responsive to changing global needs.
- Explore possible opportunities to engage previous fellows in relevant training activities in their respective regions, e.g. as mentors and facilitators.

### ***Strategic projects***

The SWG commended TDR Coordinator RCS and staff for the wide range of high-quality strategic projects and suggested continuation of follow-up of these projects. SWG members also commended TDR Coordinator RCS on the ongoing strategic engagement activities with key partner institutions he has undertaken on behalf of TDR overall as a member of the HIV/AIDS, Tuberculosis, Malaria and Neglected Tropical Diseases cluster strategic task force and of the WHO-Global Fund advisory group.

### **Mapping of externally funded postgraduate students in health research at institutions in sub-Saharan Africa, 2012 – 2017**

The SWG commended RCS for the valuable mapping done in collaboration with EDCTP as a first step in promoting a comprehensive mapping by key stakeholders.

#### *Specific suggestions:*

- Continue to use the report to catalyse a more comprehensive approach by donors to obtaining and analysing data on externally funded research capacity strengthening activities, e.g. through ESSENCE.
- Consider using data which illustrate TDR's relative advantage (e.g. supporting students in countries which may often not be within the reach of other donors) in raising DF for the TDR Postgraduate Training Scheme.

### **Theory of change for TDR/RCS activities**

The SWG commended RCS for work in developing the theory of change (ToC), which should help in articulating the contribution of the RCS activities to achieving an impact regarding the SDGs.

#### *Specific suggestions:*

- Finalize the ToC by taking into consideration the contribution of RCS activities to the SDGs, including “showcases” as relevant, and reviewing terminology to ensure consistency with the standard ToC approach.
- Continue to use the ToC for RCS to inform the development of a ToC for TDR and also for the wider group of programmes (HRP and AHPSR);

### **Adding value to the WHO guidelines development process**

The SWG commended RCS for this work, which responds to the need of those who have become equipped to undertake research to identify relevant research questions using the systematic reviews conducted as part of the WHO guideline development process.

#### *Specific suggestions:*

- To continue the work as outlined with the WHO/Communicable Diseases cluster initially and then beyond to encompass all clusters, building on the set of health issues that are covered by guidelines developed by WHO, with the expectation that the coverage will become increasingly comprehensive.
- To continue to support the development of a directory of research questions identified from the systematic reviews conducted as part of the WHO guideline development process.

### **Policy dialogue with the Global Fund**

The SWG commended RCS for continuing to work on the policy dialogue with the Global Fund, aimed at increasing country-level funding for implementation research and operational research to enhance the effective performance of programmes.

#### *Specific suggestion:*

- Consider opportunities to review the status of a selected range of countries and work through partners to facilitate the inclusion of implementation research and operational research in Global Fund grants, building on success stories, e.g. India.

### **Priority areas and budget allocation for 2020-2021 workplan on RCS**

SWG members reviewed and agreed on the RCS budget and workplan for 2020–2021 under the two overall TDR programme scenarios (US\$ 40 million and US\$ 50 million) and commended RCS on maintaining the favourable proportions of undesignated (50%) and designated (50%) funds. The SWG recognised the frequent difficulties in raising designated funding for activities to strengthen research capacity, and the value of pooled undesignated funding by donors in support of the RCS contribution to achieving long-term impact.

#### *Specific suggestions:*

- Maintain at least the current minimum level of undesignated funding for postgraduate scheme for the next biennium in view of the quality of management and implementation of the programme, and the opportunity for rapid scale-up in the event of availability of increased funding.

- Highlight to partners (particularly to donors) the relative advantage of TDR in reaching countries which may often not be reached through other externally funded programmes.

### **Addressing the challenges of raising funds**

The SWG commended RCS for the wide range of efforts by all staff in support of the Director in raising undesignated funds, and in support of raising designated funding (noting the successful renewal of designated funding for the CRDF programme and ADP project).

#### *Specific suggestions:*

- Consider opportunities to highlight to donors the contribution of TDR/RCS to “Leaving no one behind” (in the context of the SDGs).
- Identify opportunities to intensify collaboration with other WHO departments who share similar goals, to maximize synergies and avoid competition.
- Continue to identify opportunities to seek support for inclusion of a university in a French-speaking country and of a university in a Portuguese-speaking country in the Postgraduate Training Scheme.
- Continue to explore opportunities for funding from selected donors with whom TDR currently has an ongoing collaboration, e.g. IFPMA, and from possible donors when suitable contacts are made.

### **SWG members’ expertise and experience: alignment to TDR’s portfolio**

The SWG commended the TDR approach to ensuring adequate representation of expertise and experience among member of SWGs. SWG members suggested including higher education in LMICs and monitoring and evaluation as cross-cutting expertise in this template.