Seventh External Review of the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR)

Final Report

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Glossary

AA	All Authors
ADP	Access and Delivery Partnership
AFRO	WHO Regional Office for Africa
AHPSR	Alliance for Health Policy and Systems Research
AIDS	Acquired Immunodeficiency Syndrome
AMR	Antimicrobial Resistance
AMRO	WHO Regional Office for the Americas
ASA	Administrative Service Agreement
CARN-TB	Central African Network for TB Control
COR-NTD	Coalition for Operational Research on Neglected Tropical Diseases
COVID-19	Coronavirus Disease 2019
CRDF	Clinical Research and Development Fellowship
CRM	Coordinated Resource Mobilization
DEC	Disease-Endemic Country
DF	Designated Funding
DNDi	Drugs for Neglected Diseases Initiative
DRC	Democratic Republic of the Congo
EDCTP	European and Developing Countries Clinical Trials Partnership
EMRO	WHO Regional Office for the Eastern Mediterranean
ePMDS	Electronic Performance Management and Development System
ER	Expected Result
ESSENCE	Group of funders who seek to strengthen research capacity for health
EU	European Union
EURO	WHO Regional Office for Europe
EVI	European Vaccine Institute
EWARS	Early Warning and Response System
FA	First Author
FCTC	Framework Convention on Tobacco Control
FDA	Food and Drug Administration
FIND	Foundation for Innovative New Diagnostics
GAP	Global Action Plan
GE	Global Engagement
GHI	Global Health Initiative
GHRP	Good Health Research Practices
GPHG	Global Public Health Good
GPW	General Programme of Work
GSM	Global Management System
HIC	High-Income Country
HIV	Human Immunodeficiency Virus
HPPD	Health Product Profile Directory
HPRDF	Health Product Research and Development Fund
HQ	Headquarters
HRP	The UNDP/UNFPA/UNICEF/World Bank/WHO Special Programme of Research, Development and Research Training and Human Reproduction
IAEA	International Atomic Energy Agency
ID	Infectious Disease
IDDO	Infectious Diseases Data Observatory
IIR	Intervention and Implementation Research Team
IMP	Research for Implementation Unit
IMST	Incident Management Support Team
IPT	Institut Pasteur Tunis

IR	Implementation Research
IT	Information Technology
JCB	Joint Coordinating Board
KM	Knowledge Management
KPI	Key Performance Indicator
K-SRIC	Kenya Snakebite Research and Intervention Centre
LA	Last Author
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, Queer and Intersex
LIC	Low-Income Country
LMIC	Lower-Middle-Income Countries and also Low- and Middle-Income Countries
MOOC	Massive Open Online Course
MPH	Masters of Public Health
NIH	National Institutes of Health
NTD	Neglected Tropical Disease
NTD Department	WHO Department of Control of Neglected Tropical Diseases
NTP	National TB Control Programme
OR	Operations Research
PAHO	Pan American Health Organization
PB	Programme Budget
PEPFAR	The US President's Emergency Fund for AIDS Relief
PGTS	Postgraduate Training Scheme
PIM	Programme Innovation and Management Unit
PMNCH	Partnership on Maternal, Newborn and Child Health
POL	Polio Eradication Department
PPM	Portfolio and Programme Management Team
PSC	Programme Support Costs
R&D	Research and Development
RAFAScreen	A project to improve TB diagnosis in patients with diabetes and HIV in Benin, Guinea and Senegal
RCS	Research Capacity Strengthening Unit
RM	Resource Mobilization
RTC	Regional Training Centre
RITM	Research Institute of Tropical Medicine
SARIMA	Southern Africa Research and Innovation Management Association
SC	Standing Committee
SDF	Strategic Development Fund
SDG	Sustainable Development Goal
SEARO	WHO Regional Office for South-East Asia
SESH	Social Entrepreneurship to Spur Health
ShORRT	Short, all-Oral Regimens for Rifampicin-resistant Tuberculosis
SIHI	Social Innovation in Health Initiative
SIT	Sterile Insect Technology
SMART	Specific, Measurable, Attainable, Realistic, Time-Bound
SORT IT	Structured Operational Research and Training Initiative
SRHR	Sexual and Reproductive Health and Rights
STAC	Scientific and Technical Advisory Committee
SWG	Scientific Working Group
TB	Tuberculosis
TDR	UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
ToC	Theory of Change
ToR	Terms of Reference
UD	Undesignated Funding

UHC	Universal Health Coverage
UK	United Kingdom of Great Britain and Northern Ireland
UMIC	Upper-Middle-Income Country
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UN-SWAP	United Nations System-wide Action Plan on Gender Equality and the Empowerment of Women
UNU	United Nations University
US	United States of America
VBD	Vector-Borne Diseases
VES	Vectors, Environment and Society Team
VL	Visceral Leishmaniasis
WARN-TB	West African Network for TB Control
WFA	Woman First Author
WHE	WHO Health Emergencies Programme
WHO	World Health Organization
WLA	Woman Last Author
WPRO	WHO Regional Office for the Western Pacific

Executive Summary

S1 External reviews of TDR take place every five to seven years. The last review, the sixth, took place in 2016. This review looks at the early implementation of TDR's current strategy noting that the last two years were against the background of the COVID-19 pandemic.

S2 The review was based on consideration of a wide range of programme and other documents and interviews with more than 100 key informants. In addition to considering the sixth TDR review, the review considered a number of other reviews and evaluations including evaluations of HRP and AHPSR.

S3 The findings of this evaluation are presented in terms of six criteria – relevance (p15), effectiveness (p20), efficiency (p31), impact (p43), sustainability (p51) and quality of science (p56) – and four crosscutting issues – gender and intersectionality (p62), partnerships (p67), climate change (p70) and COVID-19 (p72).

S4 TDR's work remains extremely **relevant** in its focus on implementation research and research capacity strengthening in low- and middle-income countries. However, while well-understood by TDR's most immediate stakeholders, there is a broader group of stakeholders who do not fully understand this. Diseases, such as malaria, TB and NTDs, which TDR-supported research has mainly covered, remain relevant in many contexts. There is, however, broad consensus that the term tropical diseases is no longer helpful or relevant. The term which TDR largely uses now, (infectious) diseases of poverty, is better. The old term, however, remains embedded within TDR's initials and formal name.

S5 The extent to which TDR is relevant to its co-sponsors varies. Both UNDP and UNICEF see TDR as a key partner for joint activities. The World Bank would like to see such joint activities but these would need to be organized at the level of individual countries. For both UNICEF and WHO, TDR's narrow focus on infectious diseases of poverty potentially limits its relevance to their health work more broadly. In terms of WHO's disease programmes, the Global TB Programme sees TDR's work as extremely relevant but this is less the case for the WHO Department of Control of Neglected Tropical Diseases (NTD Department) and the Global Malaria Programme. While more than half of TDR's research output is consistently focused on NTDs, malaria and TB, precise areas of focus do fluctuate from time-to-time, largely reflecting particular projects that TDR is implementing at a particular time. The views of WHO regional offices on the relevance of TDR are mixed.

S6 TDR is a highly **effective** organization in delivering on its KPIs. It would help if TDR had clear annual milestones for indicator progress and plans for what to do where end-of-strategy targets are achieved early. The target relating to the percentage of income received from multi-year, unconditional donor agreements is very unlikely to be met. While there is evidence that short, virtual courses reach more people and at a much lower unit cost than in-person training, there is no definitive evidence on the relative value of the different types of courses. TDR is effectively responding to recommendations made by governance bodies. It is good that unit annual reports now list responses to Scientific Working Group (SWG) recommendations. It would be good if minutes of the STAC, the Standing Committee and the JCB did the same rather than having separate papers for this. TDR's governance structure appears to be working well. However, it is not yet clear how effective the two SWGs joint work on TDR's global engagement activities is. Also, concerns about the high transaction costs of the JCB, that were raised in the sixth review, remain although these costs were greatly reduced in the last two years as a result of COVID-19 and resulting travel restrictions.

S7 TDR is seen as a highly administratively **efficient** programme with strong and effective leadership in this area. Many external respondents praised how much has been achieved with relatively limited resources. Staff and some other stakeholders are, however, concerned that this is placing unsustainable pressures on staff. These pressures have been particularly severe in the last two years because of COVID-19 and responses to it.

S8 TDR's structure does reflect its strategic priorities but there are elements focused on research capacity strengthening beyond the Research Capacity Strengthening unit (RCS). There also seem to be areas of overlap, e.g. on SORT IT and gender. While the decision not to create a global engagement unit makes sense conceptually, this is the area where there is least clarity over what the strategic priorities are, how all the activities fit together and why some activities are considered global engagement rather than, for example, research capacity strengthening.

S9 Staffing levels are much higher in the Research for Implementation unit (IMP) than in RCS and these do not reflect the financial size of the units. They may reflect the number of projects each unit manages which raises the question as to whether TDR should continue to manage very small projects given high transaction costs.

S10 Funds provided for specific purposes (designated funds) are making an important contribution to TDR's work, funding activities that otherwise would need to be funded from undesignated funds. Many salaries are funded fully or in part from designated funds and, in 2020-21, WHO's administrative charge was almost fully funded from designated funds. However, the rate at which designated funds are charged for operational support (13% set by WHO) is lower than the actual cost of such support (around 19%).

S11 Respondents recognize the value to TDR of being executed by WHO. There are fewer concerns about the constraints placed on TDR as a result of WHO systems than were raised in the sixth review. The development and implementation of e-TDR is a key factor as issues of project management systems were particularly problematic at the time of the last review.

S12 TDR has an active approach to risk management but there is some confusion over what constitutes a "*significant*" risk. This term is used differently in reporting to the JCB and in the management of expected results. Both these uses differ from how WHO defines a "*significant risk*". While TDR does analyse risks according to probability/likelihood and impact, it is unclear how such analysis is used. It is not used to report to the JCB. Of nine "*significant*" risks reported to the JCB, only four were significant according to the WHO classification while four were low risk and one was moderate risk. The system used to report to the JCB may understate risks classified as "*fully controlled*" or "*minor issues only*" and overstate the one considered to have "*major issues*". While there is a system for assessing the risk of new initiatives and TDR's expected results, this is not as formal or systematic as that for managing organizational-level risk. The issue of prematurely closing risks, raised by the sixth review, remains an issue. While it is appropriate to close some risks, e.g. associated with the R&D Fund that is no longer envisaged, others are being closed despite having the same level of risk as some risks that remain open.

S13 There is evidence that TDR has contributed to a number of its identified **impact** goals. For example, TDR may have contributed to increasing access to health interventions through its work on the elimination of diseases of poverty and on promoting the uptake of research beyond the academic sphere. TDR has also contributed to accelerating the development of innovative tools, solutions and implementation strategies and has supported countries to scale-up successful implementation research pilot interventions by leveraging partnerships. TDR has contributed to the impact goal of building a critical mass of researchers in disease-affected countries through training individual researchers in a variety of ways. TDR has also contributed to this impact goal by strengthening institutions through establishing and supporting a number of regional training centres. Finally, TDR

has contributed to the impact goal of engaging a broad global community by improving funding coordination for implementation research, supporting data sharing to facilitate research from low- and middle-income countries, establishing collaborations with TDR's co-sponsors and promoting a community of work on social innovations in health.

S14 In terms of **sustainability**, TDR defines this as "*the continuation of benefits after major guidance and support have been completed*." TDR has contributed to this by ensuring long-term use of TDR-supported tools, including through franchising the SORT IT model; building sustainable implementation research capacity across a range of actors in low- and middle-income countries; establishing and supporting research networks, such as SIHI, WARN-TB and CARN-TB; and encouraging the adoption of its tools beyond tropical diseases/infectious diseases of poverty. A key bottleneck to sustained research capacity in low- and middle-income countries relates to funding available to support research. TDR has worked on this including by providing a secretariat to the ESSENCE network.

S15 Another important aspect relates to the sustainability of TDR as a programme or organization. While TDR's relatively "*lean*" secretariat is praised for its efficiency, there are concerns that this is at a cost to staff which could threaten TDR's sustainability. Perhaps the biggest threat to TDR's sustainability is its funding situation. While TDR is relatively fortunate in that most of its funding comes without specific earmarking, the proportion of such undesignated funding has been falling. In addition, almost all of this funding (85%) comes from five funders. While TDR does have a key performance indicator and target which expects that 70% of its funding will come as unconditional, multi-year funding by 2023, this target is not going to be met without substantive change in donor funding behaviour.

S16 TDR has a number of mechanisms in place to ensure **quality of science**, including the roles of the STAC and SWGs and publishing TDR-supported research in peer-reviewed journals. While TDR does have standard operating procedures to ensure quality of science, these largely reflect TDR's previous way of working. There are some concerns about the capacity of the STAC and SWGs to provide the kind of quality assurance TDR needs, particularly in the area of global engagement where joint work by the two SWGs is not yet optimal. Increasingly, the way in which TDR is supporting research is changing, so issues and approaches to quality assurance need to change also. For example, TDR could do more to support and oversee the quality of research conducted through partners. TDR has been active in supporting data sharing and open access publications but more work on this will be needed if TDR-supported research is to meet the target of 100% in open access formats by 2023. The conclusion that this may largely be an issue facing authors from disease-endemic countries, and may relate to funding, is not supported by analysis for this review which showed that the proportion of open access publications with a first author from a disease-endemic country was higher than for non-open access publications.

S17 TDR's work on **gender**, including its Intersectional Gender Research Strategy adopted in 2020, is widely praised. It has been good to have a staff member within TDR leading on gender but this post is not yet permanent. While she has provided a vital focal point for TDR, work on gender is carried out by all of TDR's units and teams and this work has not always been fully coordinated and connected.

S18 TDR has also paid attention to gender and equity in its own staffing, governance and activities, exceeding its targets for representation of women and representatives from disease-endemic countries in its governance structure overall. However, the JCB's membership is not balanced in terms of gender. The TDR Secretariat hold that JCB members are governments and other entities and that JCB attendees are appointed by the member or observer, over which the TDR Secretariat has no control. Nevertheless, this may be an issue that JCB may wish to seek to address or influence.

S19 While the majority of TDR's staff are women, this is particularly the case in administrative roles. These figures are, however, more or less identical to those for WHO headquarters as a whole. Women are more likely to be on lower grades than men. This is less the case for WHO as a whole. Most TDR staff are from high-income countries and this is particularly the case among professional staff. Staff from high-income countries are more likely to be on higher grades as compared to those from low- or middle-income countries. Half of TDR's staff are from WHO's European region and almost all (83%) are from countries that are over-represented in WHO. Regions over-represented in TDR staff, as compared to WHO as a whole, include the European and Western Pacific regions. Under-represented regions include the African region, the region of the Americas and South-East Asian region. The TDR Secretariat reports that this largely reflects historical recruitment and is difficult to address if there is low staff turnover. TDR does not currently formally track these areas.

S20 Progress has been made towards the target of gender equality in TDR's grantees and less so on contract awards to institutions and individuals in disease-endemic countries. TDR appears on track to achieve its targets on the authorship of publications in relation to first and last authors from disease-endemic countries and in terms of women first authors. This is less the case in terms of women last authors.

S21 **Partnerships** are of immense importance to TDR. In many ways, TDR is a partnership between its four co-sponsors. All co-sponsors are active in TDR's governance structure. UNICEF and UNDP are involved with TDR on joint programmes. WHO is the Executing Agency and also engages with TDR through its regional offices and through its disease-specific programmes, particularly on TB. Since the formation of a Science Division in WHO, TDR has been housed there along with other research entities, such as HRP and AHPSR. TDR has a special relationship with the Science Division as its Director is also Director of one of the Division's departments, Research for Health. To date, that arrangement has worked well with respondents reporting that this has raised TDR's profile and given TDR access to the Science Division and the Chief Scientist. While there are some possible risks in this arrangement, these have not yet materialized. Nevertheless, there is a high level of consensus that this is probably a short-term arrangement with both jobs requiring their own Director in the longer-term. TDR sees the establishment of a WHO Academy as an opportunity for further dissemination of its training activities and does not consider that the Academy's ambitions pose a potential risk. TDR works particularly closely with HRP and, to a lesser extent, with AHPSR.

S22 Respondents consider **climate change** to be an area on which TDR needs to focus more. It aligns well with its objectives of supporting resilient health systems through implementation research, addressing the determinants of infectious diseases of poverty and mitigating health vulnerability factors in low- and middle-income countries. There may also be funding opportunities associated with climate change mitigation in relation to global health research in terms of emergencies, epidemics and pandemic-preparedness. TDR has already undertaken some work on climate change in relation to vector-borne diseases and operationalizing a One Health approach. Although climate change is mentioned in the current strategy, it does not feature as a priority area. There may be some tension between being country-driven and taking on an agenda such as climate change, which may not appear to be prioritized by health researchers in low- and middle-income countries but this may be due, in part, to people not associating climate change with TDR's name. To date, TDR-supported papers tackling climate change have all been related to specific calls for proposals.

S23 In addition, TDR needs to ensure that it reduces and mitigates its own climate impact. During the COVID-19 pandemic, TDR adapted its ways of working, both in terms of its own activities (staff working remotely and holding virtual meetings for the JCB and SWGs) and in supporting its partners in transitioning to virtual or mixed training modalities. These arrangements have greatly reduced the demands for travelling with massive costs savings and likely positive impact on TDR's carbon footprint. However, there have also been challenges and drawbacks according to some respondents.

There is scope for some of the practices adopted during the COVID-19 pandemic to be carried on as a way of reducing TDR's carbon footprint.

S24 **COVID-19** and the need to focus attention on it has been challenging for TDR and TDR staff who have continued to deliver despite high levels of pressure and stress. COVID-19 has highlighted a number of issues of relevance to TDR including how vulnerable and marginalized populations are disproportionately affected, the importance of a "*One Health*" approach and the need for imaginative and innovative thinking. Of course, one of the main effects of COVID-19 was that it hastened the transition to online working and delivery of services. Some see work and activities remaining largely online while others see a return to more "*normal*" ways of working with most seeing some form of hybrid working. A key point of learning is that online activities work best when designed for that environment.

S25 There is strong evidence that the strengthened research capacity provided by TDR through SORT IT, PGTS and CRDF has been helpful in the response to COVID-19. Based on a survey conducted in 2020, it seems that more than half of those responding to the survey were working on COVID-19 responses and, of those, around three-quarters were using the skills they had learned from TDR. The highly transferable nature of the skills acquired through TDR's research capacity strengthening activities is highly-valued.

S26 TDR was praised for its flexibility and the various roles it had played in responding to COVID-19. This included work on how COVID-19 was affecting services for other diseases, such as TB and malaria, seeking to use and promote new technologies to support responses to COVID-19 and using lessons learned from other emergencies, e.g. Ebola, to respond to COVID-19. TDR also was involved in seeking to ensure that COVID-19 responses focused on the poorest and most vulnerable although some respondents thought that TDR could have done more in this area. The extent to which TDR focused on COVID-19 was decided by the STAC and JCB and was based on experience of responding to Ebola. Respondents had mixed views as to whether TDR had done enough in the response to COVID-19 with some commenting that they had not while others praised TDR for not being completely diverted from its core work.

S27 There was a degree of consensus that TDR will need to take into account lessons learned from COVID-19 in developing its new strategy but there are very mixed views as to what those lessons are, particularly in terms of any future roles for TDR. Perhaps least controversial are focusing on implementation research, low- and middle-income countries and poor and marginalized populations. Perhaps most contentious is the implication that this might mean a shift away from a perceived focus on particular groups of diseases (tropical diseases or [infectious] diseases of poverty) especially TB, malaria and NTDs. While many respondents see the need for TDR to adapt considerably if it is to remain relevant in a much-changed health environment, there are some who believe TDR should remain focused on the issues for which it was established.

Conclusions and Recommendations

S28 This section presents the review's conclusions and the recommendations emanating from them. The recommendations identify particular stakeholders to whom they are addressed and the time period over which these recommendations might be implemented, within this strategy, within the next strategy or in the longer-term. The section starts with three general conclusions about the development of the next strategy and then presents conclusions according to the six criteria used for the review (relevance, effectiveness, efficiency, impact, sustainability and quality of science) and four crosscutting issues (gender and intersectionality, partnerships, climate change and COVID-19). In some cases, elements of the three general conclusions are explained in more detail in specific conclusions and recommendations and, in these cases, cross references are provided. In addition to

the first three conclusions and recommendations, there are a number of other conclusions and recommendations of relevance to the development of TDR's next strategy. These are clearly marked in the "*next strategy*" column related to the recommendation.

Conclusions concerning strategy development

Conclusion 1: While the previous strategy development process was considered to be consultative by TDR management, some groups of stakeholders commented that they had not been able to contribute as much as they would have wished.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
1.1. In preparing the next strategy, to organize a structured process of consultation, that might be externally facilitated, with a wide range of stakeholder groups including, in particular, co-sponsors; JCB, Standing Committee, STAC, and SWG members; WHO regional offices; WHO Science Division; WHO relevant technical departments; WHO Academy; other similar research entities (HRP and AHPSR) and TDR staff.	TDR Secretariat		✔	

Conclusion 2: TDR's shift from a focus on product R&D for specific diseases to a focus on implementation research, research capacity strengthening and the needs of low-and middle-income countries is appropriate. However, while this is well-understood among TDR's closest stakeholders, many respondents beyond this group do not fully understand this. This is not helped by some lack of clarity over whether the current strategy's first pillar is research, research for implementation or implementation research. There is also some confusion, at least for communications purposes over the use of the term research for implementation as an overarching term for all implementation research and for a specific sub-type of such research, that is research for implementation and access.

This strategic shift has implications for what TDR's success might look like which have not perhaps been fully understood by some respondents. TDR's future success is less likely to be seen in breakthrough technologies for specific diseases but rather in terms of improved implementation at local and national level. In addition, TDR's future success will be less in terms of its own achievements but rather in terms of the achievements of others that TDR has supported, including in particular research partners at country level. Given this, it is likely that TDR's engagement and focus will increasingly be at country level and this creates some challenges for a small global secretariat based entirely in Geneva.

There could be implications also for any disease or thematic focus that TDR has. Historically, TDR's focus has been on "*tropical diseases*" and this has largely been interpreted as malaria, TB and NTDs. Increasingly, TDR describes its focus as (infectious) diseases of poverty but it is unclear if this is a re-branding of the three main disease groups or reflects a broadening of focus. Analysis of TDR-supported research publications shows that the majority of these continue to focus on TB, malaria and NTDs. While it could be that this is because this reflects local and national priorities, it could also be because this is what local and national stakeholders consider are TDR's main area of focus. Having a disease or thematic focus is difficult to justify and explain if TDR's main areas of focus are implementation research, research capacity strengthening and low- and middle-income countries.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
2.1 TDR's focus in the next strategy to remain on implementation research, research capacity strengthening and low- and middle-income countries.	TDR Secretariat and those consulted		✔	
2.2 Next strategy to be clearer as to what implementation research and its sub-divisions are avoiding having implementation research as both an overarching term and a sub-category. If sub-categories are retained, perhaps a different term could be used, such as research for delivery and access.	TDR Secretariat		✔	
2.3 TDR to clearly identify what success looks like in terms of the current and future strategic focus. This is not so much about specific indicators but about clearly describing that success is no longer about TDR identifying breakthrough products in specific diseases but is about TDR's partners improving implementation locally and nationally.	TDR Secretariat/ JCB		✔	
2.4 TDR to identify ways in which it might increase its engagement and focus at country level. Possible options could include having more formal national TDR representatives within existing partner organizations and/or having national research officers within the country offices of WHO or another co-sponsor and/or structuring the secretariat differently and/or having some staff based in regions/countries. There may be need for different solutions in different country contexts.	TDR Secretariat/ JCB		✔	
2.5 TDR to consider whether there is need to change its name with or without change of its acronym. Options might be to formally change the name to the name being used in practice, i.e. UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training on (Infectious) Diseases of Poverty with or without changing the acronym TDR which has widespread recognition and value as a brand.	JCB/Co-sponsors			✔
2.6 TDR to consider how agencies and programmes working in similar areas (of implementation research, research capacity strengthening and low- and middle-income countries) could work more closely together including potentially merging activities and/or organizations.	JCB/HRP/ AHPSR/WHO Academy/co-sponsors/ funders			✔

Conclusion 3: Some key areas of TDR's work are not currently reflected in indicators in TDR's performance framework. The most substantive is at the level of impact and sustainability. According to the performance framework, TDR's expected impact is that countries are generating and using research evidence but TDR currently does not assess the extent to which this is happening across individual countries or the extent to which TDR's activities are contributing to this. TDR does have anecdotal evidence of potential contribution of specific activities or partners but there has not been to date any systematic assessment of this in particular countries.

Other key areas of TDR's work that are not currently reflected in indicators in TDR's performance framework include:

- Any measures related to climate change and the environment, both within TDR's programmes and activities and in terms of TDR's own carbon footprint.
- Any measures related to TDR's preparedness for and involvement in responses to emergencies/outbreaks/epidemics/pandemics.
- Measures of sustainability beyond continued use of TDR products.
- Gender and geographical balance within TDR staff and in individual elements of its governance structure, particularly the JCB.
- An indicator to measure the proportion of funds spent on operations support disaggregated by designated and undesignated funds.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
3.1. To conduct country-level evaluations/case studies focused on understanding the extent to which countries are generating and using research evidence and any contribution TDR and its programmes and partners have made to this, including through promoting implementation research, providing and leveraging funding, and strengthening research capacity.	TDR Secretariat /JCB		✔	
3.2. To address the following areas in preparing metrics/indicators in any performance framework for the next strategy: • Climate change metrics in TDR programmes • Measure of TDR's own carbon footprint • Measures of emergency preparedness and involvement • Measures of sustainability beyond continued use of TDR products • Indicators of gender and geographic balance in TDR staff and specific elements of TDR's governance structure, e.g. JCB • Indicator to measure proportion of spending on operations support (by designated and undesignated funding)	TDR Secretariat /JCB		✔	

Relevance

Conclusion 4: TDR's strategic focus on implementation research and research capacity strengthening in low- and middle-income countries continues to be extremely relevant. While diseases such as tuberculosis, malaria and NTDs remain relevant in many contexts, there are now many more actors on these diseases and TDR's relevance can no longer be defined in terms of these diseases as it once was. TDR's approach of responding to locally-identified research priorities and to critical areas that are less well supported and constitute gaps in the global health research agenda is also very relevant. While TDR's closest stakeholders understand these issues well, there is a wider group of stakeholders who understand these less clearly and continue to identify TDR with research on "*tropical diseases*".

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
4.1. To intensify communications with a wider group of stakeholders to explain TDR's strategic priorities and approaches.	TDR Secretariat	✔		
4.2. To determine whether TDR wishes to only be guided by locally-determined priorities or whether it wishes to continue to highlight certain thematic priorities in the next strategy that might otherwise be overlooked. Consideration to be given to shift away from these priorities being based on specific diseases or disease groups to thematic issues, such as climate change, gender and intersectionality and emergencies / outbreaks/ epidemics / pandemics.	TDR Secretariat and those consulted		✔	

Conclusion 5: Given TDR's shift away from product R&D towards research capacity strengthening and implementation research based on locally-determined priorities, there is need to ensure that TDR is able to engage effectively with stakeholders at national and regional level including with key partners and co-sponsors operating at those levels.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
5.1. To engage with each of the co-sponsors separately on the relevance of TDR to their activities. With the World Bank specifically, identify opportunities for joint collaborative projects, as TDR has done with other co-sponsors, in one or two countries	TDR Secretariat / Co-sponsors	✔		
5.2 TDR to identify ways in which it might increase its engagement and focus at country level. Possible options could include having more formal national TDR representatives within existing partner organizations and/or having national research officers within the country offices of WHO or another co-sponsor and/or structuring the secretariat differently and/or having some staff based in regions/countries. There may be need for different solutions in different country contexts.	TDR Secretariat /JCB		✔	

Effectiveness

Conclusion 6: TDR is an effective organization in terms of delivering on its KPIs. However, progress would be easier to track if targets had annual milestones and not just end-of-strategy targets. There is also an issue for targets that have already been met and, in some cases, e.g. on gender, targets would be better set as a target range than as a single number. The target on the percentage of funding received from multi-year, unconditional donor agreements is not going to be reached based on current trajectory. Potential implications for indicators and the performance framework in the next strategy are covered in Conclusion 3 and Recommendation 3.1.

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
6.1. To develop annual milestones for KPIs to aid understanding and visualisation of whether they are on track.	TDR Secretariat	✔		
6.2. To decide what to do with targets that have already been reached. Option are to i) reset targets, ii) drop the indicators or iii) continue monitoring indicators where there may be risk of falling back (e.g. on gender).	TDR Secretariat /JCB	✔		
6.3. To decide what to do with indicator 23. "*Percentage of income received from multi-year, unconditional donor agreements"* which will not be reached based on current trajectory. Assuming that radical change in donor practices is unlikely in the short-term, options are to i) drop/replace the indicator or ii) revise the target down.	TDR Secretariat /JCB	✔		
6.4. To identify those indicators where targets might be better set as a range rather than as a single number. Possible indicators to consider for this include indicators 13-17 in the performance framework.	TDR Secretariat	✔	✔	

Conclusion 7: While there is strong evidence that short-term courses reach more people at much lower cost and there is anecdotal and survey evidence of the value of longer-term training, relatively little is known about the value or otherwise of short-term courses. As a result, there is insufficient evidence to make clear strategic recommendations about any changes TDR should make to the types of training it should and should not prioritize.

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
7.1 To collect more evidence on the contribution of short courses, such as the MOOC, to the broader aims of TDR, e.g. of building a critical mass of people with skills in implementation research, and the relative value-added of and the availability of other funding sources for different training modalities.	TDR Secretariat	✔		

Conclusion 8: The TDR Secretariat is diligent and systematic in following up the recommendations of the JCB, Standing Committee, STAC and SWGs. The inclusion of SWG recommendations and actions taken in the units' annual reports is a good development but this has not yet extended to cover global engagement (see Conclusion 9). While TDR does compile lists of STAC, Standing Committee and JCB recommendations, and does report progress against these, the details of this are not currently included in or annexed to the meeting reports. In addition, these responses – and responses to recommendations of reviews – do not indicate whether or not TDR accepts the recommendation made. In terms of "*recommendations*" from governance bodies, this step may not be appropriate and, in this case, these "*recommendations*" may be better referred to as "*decisions*".

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
8.1. To explicitly reference the recommendation lists in the reports of the STAC, Standing Committee and JCB and to annex them and responses to them to the reports.	TDR Secretariat	✔		
8.2. When responding to recommendations to state explicitly whether or not the recommendation is accepted.	TDR Secretariat	✔		

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
8.3. To determine whether it is appropriate to refer to "*recommendations*" from governance bodies, particularly the JCB and to consider whether these should be termed "*decisions*".	JCB	✔		

Conclusion 9: TDR has established a system whereby the SWGs for IMP and RCS have a joint session to work with the TDR Secretariat on global engagement activities. However, this approach is not yet working as well as in other areas, e.g. IMP and RCS. In general, the global engagement area of TDR's strategy appears to be the least clearly defined area of the three strategic priorities and, as a result, probably merits particular scrutiny and oversight.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
9.1. To implement the IMP SWG recommendation on having the session dedicated to global engagement before other SWG meetings.	TDR Secretariat and SWGs	✔		
9.2. To generate joint recommendations for global engagement in the same way the SWGs do for RCS and IMP. Global engagement reports to document these recommendations and responses to them as the IMP and RCS reports do.	SWGs and GE "*team*"	✔		
9.3. To review how well this mechanism is working and, based on this review and the assumption that global engagement remains a priority in the next strategy, decide whether global engagement merits its own unit and its own SWG.	TDR Secretariat and JCB		✔	

Conclusion 10: TDR's governance structure is considered to be effective and to add value. However, there are concerns regarding the transaction costs of holding JCB meetings face-to-face that were also raised in the sixth review.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
10.1. To take stock of the experience of the last two years in terms of advantages and disadvantages of the virtual arrangements for the JCB prompted by COVID-19. Consider maximising costs savings and carbon footprint reduction by continuing to hold JCB meetings virtually or, if that is not agreed, to consider alternating one virtual and one face-to-face meeting per biennium.	JCB	✔	✔	

Efficiency

Conclusion 11: TDR is seen as an extremely administratively efficient organization with strong leadership in this area. However, this efficiency is reported to be placing high levels of burden on staff.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
11.1. Given high transaction costs, to consider trying to control workloads, for example, by avoiding taking on small projects.	TDR Secretariat	✔	✔	
11.2. If the RCS unit is to be maintained in the next strategic period, it would be desirable to fill the Unit Head position sooner rather than later. The profile for this position should emphasize good organizational and management skills rather than scientific expertise, although this may be desirable. While educational/ pedagogical expertise would be beneficial for the team overall, that may be better suited to a team member rather than for the Unit Head role.	TDR Secretariat	✔		

Conclusion 12: While TDR's current structure does broadly reflect its strategic priorities, there is an issue that most of TDR's activities involve research capacity strengthening and these activities are carried out by RCS, IMP and through global engagement.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
12.1. To review the continued utility of an RCS unit and how TDR might be best structured to deliver its next strategy. One option is to keep the structure mostly as it is, with IMP and RCS units, while clarifying the situation of global engagement and whether this area should have a unit and SWG depending on how well the current arrangement is going. However, the new strategy might require a more radically revised structure, particularly as research capacity strengthening is currently both TDR's main way of working and the name of a specific unit.	TDR Secretariat /JCB		✔	

Conclusion 13: TDR makes every effort to ensure projects funded from designated funding fully cover the cost of operations including the salaries of staff working on the project. However, although TDR charges designated funds programme support costs (PSC) at a level of 13% set by WHO, this does not cover the full costs of such operational support which are currently around 19% across TDR. This means that TDR core costs are being met completely from undesignated sources.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
13.1. To hold a discussion between TDR Secretariat, the JCB and funders to decide how this should be approached. One option is for those providing undesignated funding to agree to fund all TDR's core costs as part of their investment in TDR as a programme/organization. If that is not agreed, it may be necessary to see if those providing designated funding would be willing to pay at a higher level towards these	TDR Secretariat /JCB	✔		

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
costs and to see if a way could be found to do this through WHO systems.				
13.2 TDR to actively monitor this, e.g. by clearly distinguishing operations and operations support costs in salaries in its expenditure reports as previously requested by JCB and reporting on the percentage of UD/DF/total funds spent on operations support (including salaries) and potentially making this a key performance indicator, and then taking steps to try to drive this percentage down.	TDR Secretariat /JCB	✔	✔	

Conclusion 14: The value-added of TDR being embedded in WHO is well recognized. In addition, the difficulties related to WHO systems, which were documented in the sixth review, seem much less problematic now, not least because of improved project and programme management systems through the adoption of e-TDR.

Conclusion 15: While there are more women than men among TDR staff, many are in administrative positions and women are more likely to be on lower grades than men. In many ways, these issues are reflected in WHO headquarters as a whole, although women in administrative roles in WHO headquarters are more likely to be on higher grades. Also, most TDR staff are from high-income countries and from countries that are over-represented in WHO. TDR management are aware of these issues but there are challenges to address them because of low staff turnover and the requirements of WHO's recruitment procedures.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
15.1. To take every opportunity to address these imbalances by publishing job vacancies broadly and giving opportunities for women from low- and middle-income countries to be initially shortlisted.	TDR Secretariat	✔		
15.2. To report regularly on the evolution of these numbers. Options include reporting annually or every biennium to JCB.	TDR Secretariat	✔	✔	
15.3. In line with the evaluation of gender in WHO in the frame of the Transformation, to continue to actively address the issue of unconscious bias through training at management and other levels, including through training provided by WHO.	TDR Secretariat	✔		

Conclusion 16: At the organizational level risks are being actively identified and managed. However the term "*significant*" risk is being used in a number of different ways which do not coincide with WHO definitions. While risks are being assessed in terms of impact and likelihood/probability, these elements, and the risk level assessments that are derived from them, are not being reported to the JCB. This means that a wide range of different risk levels are being reported to JCB as "*significant*" including low, moderate and significant levels. While it is appropriate to close risks when the risk no longer exists, some risks are being closed prematurely when the risk level is relatively low but the risk still exists and this issue was noted in the sixth review. While there do appear to be some systems in place related to project/activity-level risks, these are not as systematic as those for managing organizational risk.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
16.1. To use consistently WHO definitions of risk levels (low, moderate, significant and severe) including in reporting to the JCB. This will involve reporting on impact and probability/likelihood of identified risks.	TDR Secretariat	✔		
16.2. To decide if risks with low and moderate levels of risk should continue to be reported to the JCB	TDR Secretariat/ JCB/ Standing Committee	✔		
16.3. To only close risks when they have really ended. If the risk persists but at a lower level, the risk should remain open but may not need to be reported to the JCB unless the risk level rises again.	TDR Secretariat/JCB/ Standing Committee	✔		
16.4. To introduce a more systematic way of managing project/activity-level risks, including risk scoring, regular risk reporting and ways to coordinate risk management and escalate project/activity-level risks of programmatic and/or organizational importance.	TDR Secretariat	✔		

Impact

Conclusion 17: While TDR actively monitors the contributions of its interventions towards "*impact goals*", these are really at the level of outcomes. TDR's expected impact is that "*countries [are] generating and using the research evidence they need to leave no-one behind when acting to reduce the burden of infectious diseases of poverty.*" Currently, TDR is not systematically assessing the level to which this is occurring at the level of specific, individual countries.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
17.1. To supplement current monitoring and evaluation activities with efforts to assess the extent to which research evidence is being generated and used in individual, specific countries and the extent to which TDR's activities have contributed to this. Options for doing this might include conducting country-level impact case studies as part of future TDR reviews/evaluations or seeking to embed an assessment of TDR's impact in WHO country evaluations whenever possible.	TDR Secretariat/ JCB	✔	✔	
17.2. While it may not be feasible to specifically identify TDR's contribution to any progress towards SDGs, to take opportunities to seek to better understand this wherever possible including, for example, linking up more to the SDG3 GAP.	TDR Secretariat and co-sponsors (as SDG3 GAP agencies)	✔		

Conclusion 18: There appear to be some areas of work which are duplicated across units, e.g. IMP and RCS SWGs both make recommendations on SORT IT and both IMP and global engagement have been leading work on gender.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
18.1. To look for and take opportunities to build synergies between interventions in the units, including for example, reviewing the two sets of recommendations by SWGs on SORT IT, perhaps at the STAC and considering how mainstreaming the gender work across units, e.g. IMP and global engagement, could be better coordinated.	TDR Secretariat /STAC	✔		

Conclusion 19: There is potential to generate more impact through TDR's co-sponsors if they could move beyond participation in TDR's governance and specific joint projects, for example, by TDR playing a more active role in supporting and promoting implementation research by co-sponsors.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
19.1. To discuss with co-sponsors individually how engagement between the co-sponsor and TDR might move beyond participation in TDR's governance and joint projects and how TDR can be more influential on implementation research capacity and activities across the co-sponsors operations including at country level.	TDR Secretariat /Co-sponsors	✔		

Sustainability

Conclusion 20: TDR's current approach to the sustainability of its outcomes and results is quite generic and does not take into account individual country contexts which may mean that the same TDR activities produced sustained benefits in one country but not in another. Impact and re-entry grants were identified by respondents as important contributors to sustainability.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
20.1. To conduct country assessments in order to determine the likelihood that interventions would be sustainable. If there are found to be factors that make sustainability unlikely in a particular country, options may including partnering with co-sponsors to make sustainability more likely or not prioritizing interventions in that particular country/context.	TDR Secretariat /Co-sponsors	✔	✔	
20.2 To consider continuing and/or reintroducing impact/re-entry grants as important contributors to sustaining trainees' involvement in research.	TDR Secretariat	✔		

Conclusion 21: The current measurement of sustainability through indicator 21 "*number of effective public health tools and strategies developed which have been in use for at least two years*" is problematic as the indicator does not specify that the monitoring of this period would start after TDR support has ended and the period of two years seems arbitrary and may lack relevance to different tools.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
21.1. In the new strategy, to consider monitoring sustainability through other measures for example, the number of countries where TDR has made an assessment of the likely sustainability of outcomes to which they contribute and has identified contextual factors that may affect sustainability, with a rating system of sustainability likelihood (likely without additional interventions/ possible with engagement of co-sponsors and others/ unlikely).	TDR Secretariat /JCB		✔	

Conclusion 22: In terms of sustaining TDR as a programme or organization, its dependence on donor funding constitutes the major risk for sustainability. However, this is well-managed and TDR has built a strong reputation with key funders. TDR is fortunate to have funders who are willing to provide undesignated funding. However, the proportion of funding provided as undesignated is declining and TDR depends on five funders for the bulk of undesignated funding. WHO's fundraising strategy which envisages more funding going through WHO could potentially divert funds away from TDR. There is an ongoing issue of capacity in terms of resource mobilization at the TDR Secretariat. The sixth review's recommendation of increasing fundraising capacity was not taken forward in terms of a staff member due to the headcount cap. The TDR Secretariat report that they did hire a consultant in this role but this did not raise sufficient funds to cover the cost.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
22.1. To map potential funding opportunities in terms of the changing global health research architecture, including exploring potential other sources of undesignated funding and considering non-donor options, such as membership fees or fees for service.	TDR Secretariat	✔		
22.2. Based on the mapping results, identify and prioritize potential donors from whom TDR will try to raise additional undesignated funding. To then seek to build relationships and collaborations with those donors.	TDR Secretariat	✔	✔	
22.3. Based on the mapping results and prioritization exercise, to communicate on the value-added of TDR in relation to the priorities of donors/new funding sources.	TDR Secretariat	✔	✔	
22.4. To identify ways in which TDR's resource mobilization capacity can be strengthened despite the constraints of the headcount cap. Options may include bringing someone with that skill in a role to be recruited or explicitly prioritizing this role in the job of one or more existing managers.	JCB	✔	✔	

Quality of science

Conclusion 23: While TDR-supported research is widely acknowledged as of good quality, its quality assurance systems are still largely premised on the assumption that TDR is doing the work and producing the research rather than, increasingly, working through partners to do so. Substantial progress has been made in terms of publishing research in open access formats but some papers are still published in formats which are not open access. Analysis for this review indicates that this is particularly the case where the first author is from a high-income country and where the paper is focused on NTDs.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
23.1. To establish a quality assurance system which is explicitly designed for delivery through partners and not through direct delivery. This will involve identifying key areas of quality and relevant quality standards needed and then using these to assess the extent to which partners have, and continue to have, such systems in place. While this could involve sampling of products, the day-to-day responsibility of quality assuring products will be with partners.	TDR Secretariat	✔		
23.2. To update TDR's standard operating procedures to bring them in line with TDR's way of working which is now primarily through partners.	TDR Secretariat	✔		
23.3. To achieve the target of 100% of publications in open access format, TDR to better understand why some publications continue to be in non-open access formats. One option would be to review this issue with authors who have published in these formats in the last few years, seeking to identify the factors involved.	TDR Secretariat	✔		

Conclusion 24: The STAC and SWGs provide an effective basic structure and system that contributes effectively to ensuring the quality of TDR's work. They do not yet cover TDR's work on global engagement, although steps have been taken in that direction (see Conclusion 9 and Recommendations 9.1-9.3).

Gender and intersectionality

Conclusion 25: TDR has adopted a strong intersectional gender approach in different aspects of its work, captured in its Intersectional Gender Research Strategy. Although TDR has put in place measures to encourage the participation of women in science and promote the inclusion of an intersectional gender lens in research, there are still bottlenecks to realize this agenda and the work undertaken in different strategic areas could be better integrated.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
25.1. TDR to consolidate its expertise on gender by making the current position permanent and to consider the feasibility of increasing its technical and coordination capacity on gender and intersectional research by including gender and equity specialist skills in its technical teams.	TDR Secretariat	✔		
25.2. TDR to commission research to better understand why women were less likely to be using skills learned in responding to COVID than men	TDR Secretariat	✔		

Conclusion 26: TDR management is aware of the need to improve gender and equity internally, however this is not yet fully reflected in the organization's staffing and JCB composition. There are also other conclusions and recommendations (#3.1 and #15.2) on this issue which relate to reporting regularly on gender and geographic composition of staff to JCB.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
26.1. TDR to consider joining the UN System-wide Action Plan (UN-SWAP) mechanism to ensure that the integration of gender considerations is fully implemented and tracked in all relevant aspects of its work. Also, to consider liaising with the WHO's Gender, Equity and Human Rights Unit, which could offer external support to identify entry points for addressing gender and equity issues.	TDR Secretariat	✔		

Partnerships

Conclusion 27: All TDR co-sponsors are engaged in TDR's governance mechanisms but level of engagement varies after that. TDR is executed by WHO and is located in its new Science Division with TDR's Director also acting as Director of one of the Division's departments, Research for Health.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
27.1. To discuss with the World Bank how TDR might establish joint projects with the Bank, perhaps in one or two countries.	TDR Secretariat	✔		
27.2. To continue to monitor the effects, positive and negative of sharing the TDR Director with the Research for Health Department in WHO.	JCB	✔		
27.3. To clarify if the intention is that the current arrangement is temporary and that the expectation is that there will be separate Directors for TDR and the Research for Health Department.	JCB/WHO	✔		
27.4. To promote collaboration with the WHO Academy where possible recognising and tracking potential risks if the Academy's role expands as envisaged.	TDR Secretariat	✔		

Conclusion 28: TDR is collaborating closely with HRP and, to some extent, with AHPSR, particularly in the area of research capacity strengthening. There is potential for even greater collaboration, particularly if TDR decides that its focus is on systematically strengthening health research capacity independent of a specific disease or thematic focus.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
28.1. To explore ways in which collaboration and cooperation between TDR, HRP and AHPSR can be enhanced, particularly in the area of research capacity strengthening	TDR Secretariat/ HRP/ AHPSR	✔		
28.2. To explore potential for joint/merged activities on research capacity strengthening	TDR Secretariat		✔	

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
28.3 To discuss long-term plans for these three entities. Does it make sense to aim for merger with a focus on research capacity strengthening with scope for particular programmes focused on specific topics?	JCB. WHO, funders, HRP, AHPSR			✔

Climate change

Conclusion 29: There are good opportunities for TDR to engage on the prevention and mitigation of climate change impact on health outcomes in low- and middle-income countries, but this agenda may need to be driven proactively by TDR, at least initially. Climate change does not currently feature prominently in TDR's strategy and demands from country stakeholders for capacity strengthening are not currently prioritizing climate change adaptation and health.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
29.1. To consider whether there is an appetite for developing a crosscutting thematic area on climate change mitigation in the next strategy, perhaps in a similar way to what was done for gender and intersectionality.	TDR Secretariat/ JCB		✔	

Conclusion 30: Building on the experience of working during the COVID-19 pandemic, there are opportunities to integrate measures for reducing the carbon footprint of the organization through adapting its ways of working both internally and through its partnerships. These measures would also reduce costs.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
30.1. TDR to undertake an assessment of its carbon footprint and develop strategies for reducing this by adopting low-emission practices both in its own way of working and in activities through partnerships.	TDR Secretariat	✔		
30.2. TDR to consider reporting regularly on its carbon footprint, potentially as a KPI.	TDR Secretariat	✔	✔	

COVID-19

Conclusion 31: There have been lessons learned as a result of COVID-19 in highlighting particular issues, the use of virtual ways of working and TDR's potential role(s) in responding to an emergency/outbreak/epidemic/pandemic. There is recognition that, while TDR's work may be focused on one or more diseases, its activities are building health research capacity into health systems in a resilient way which can then be pivoted and applied to different priorities as they arise.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
31.1 To present an analysis paper to the STAC/Standing Committee/JCB on lessons learned from COVID-19 and implications for future working, which should cover key issues which have been highlighted by the pandemic including the disproportionate effects on vulnerable and marginalized populations, the importance of a One Health approach and the importance of innovative thinking particularly in the context of emergencies.	TDR Secretariat	✔	✔	
31.2 To present an analysis paper to the STAC/Standing Committee/JCB on lessons learned from COVID-19 and implications for future working in relation particularly to the balance between virtual and face-to-face means for TDR staff, governance structure and training activities.	TDR Secretariat	✔	✔	
31.3. To present an analysis paper to the STAC/Standing Committee/JCB which clearly identifies the role(s) TDR would (and would not) play in future emergencies/ outbreaks/epidemics/ pandemics. To then use this as the basis to clearly communicate TDR's value-added in terms of preparing for and responding to emergencies/ outbreaks/epidemics/pandemics in the next strategy.	TDR Secretariat	✔	✔	
31.4. To consider revising the current focus on disease groups, which implies that core health system research capacity strengthening is a by-product and not the explicit aim of TDR's work. Consider moving away from focus on disease groups in the long-term.	JCB			✔

Introduction and Background

1. External reviews of TDR are commissioned every five to seven years. The last one, the sixth [1][1], took place in 2016 in preparation of the current strategy which is entitled, "*Building the Science of Solutions*". [2] That has three key strategic areas:
   - Supporting research that improves disease control and ensures effective implementation of both new and proven interventions.
   - Increasing the capacity to do this research at different levels and in different systems in disease-affected countries.
   - Using the power of TDR's global engagement to facilitate and accelerate a global response.

2. As described in the terms of reference (see Annex 1, p**Error! Bookmark not defined.**), this seventh external review has been commissioned by TDR's Joint Coordinating Board (JCB) and is intended to provide a mid-term evaluation of the current TDR strategy.

Evolution of TDR since the sixth review

3. As part of the WHO Transformation Agenda, a number of adjustments were made to TDR as a special programme executed by WHO. Following the creation of a WHO Science Division in 2019, TDR became part of the new Division together with two other research programmes, HRP and the AHPSR. At the same time, TDR's Director was asked by the WHO Director-General to lead the new Research for Health Department, one of three departments within the Science Division, along with his role as Director of TDR. In 2021, the Science Division launched its new strategy [3], which encompasses TDR in its structure.

4. TDR's internal organization has also evolved. At the time of the sixth review, TDR was organized around four units, Intervention and Implementation Research (IIR); Research on Vectors, Environment and Society (VES); Research Capacity Strengthening and Knowledge Management (RCS-KM); and the Portfolio and Programme Management (PPM) unit. A reorganization to simplify this structure was adopted in 2019 in the context of the WHO Transformation and in response to both the sixth review's recommendations and points raised by TDR's Scientific and Technical Advisory Committee (STAC). The new structure is organized around three units, Research for Implementation (IMP), Research Capacity Strengthening (RCS), and the Programme Innovation and Management (PIM) unit. Knowledge and partnership management functions are now included under the Director's office.

5. The WHO Transformation also had implications for TDR's systems, leading to greater alignment in administrative support, human resources and monitoring systems with WHO as the executing organization. In 2019, efforts were made to align TDR's result-chain with the 13th General Programme of Work (GPW 13) framework. In 2020, TDR put in place e-TDR, a novel information system for planning, monitoring and reporting which serves as an interface with the updated WHO General Management System (GSM).

6. This first implementation period of TDR's strategy has coincided with the COVID-19 pandemic, which has affected TDR's operations and the context of its work, testing its model and giving an opportunity to show how the programme can adapt and add value in this context. TDR staff have shifted largely to teleworking, and TDR has adapted its ways of working and delivering activities. Despite this challenging context, the TDR Secretariat has already been able to demonstrate some important key achievements during this period of early implementation of the strategy. Some of these are briefly highlighted in relation to the strategy in this section and they are illustrated in a number of timeline diagrams (see Figures 1-3) drawing particularly on TDR annual reports for 2018, 2019, 2020 and 2021 (draft).

[1] Numbers in square brackets provide links to references cited in text.

Key achievements over the period (2018-2021)

VES, IIR and IMP (see Figure 1)

7. TDR's strategy [2] envisages research for several purposes – for policy, implementation and access, innovation and integrated approaches.[2] Key achievements under the research for policy heading include: support to the Early Warning and Response System (EWARS) for dengue outbreaks, in collaboration with WHO's Health Emergencies Programme, and the Structured Operational Research and Training Initiative (SORT IT) course on antimicrobial resistance (AMR) and other topics such as tackling public health emergencies in South-East Asia, accelerating Universal Health Coverage (UHC) progress for hard-to-reach populations and NTDs in Africa. To overcome COVID-19 restrictions, a SORT IT online platform was deployed to allow fully online or "*hybrid*" delivery options.

8. Under research for implementation and access, TDR has supported work to understand how interventions can be scaled up to national level after piloting or clinical trial phase. TDR has supported the creation of regional networks to foster collaborations and research capacity on priorities for TB prevention and control. Eleven countries formed the Central African sub-regional network for TB control (CARN-TB) in 2018, joining the existing West African network of 16 countries (WARN-TB). The networks have been active from the onset of the COVID-19 pandemic in developing solutions to mitigate the effects of COVID-19 on TB prevention and control programmes. TDR has also continued to support research efforts on the elimination of visceral leishmaniasis (VL) and onchocerciasis, especially in research on "*last mile*" efforts to inform elimination strategies.

9. Under research for innovation, TDR has worked to identify gaps where support was needed to initiate research on specific issues and to mobilize other actors around those issues. The team has contributed to investigations on vector-borne diseases (VBD) and climate change and supported innovative community-based solutions. This has happened notably through work to tackle residual malaria, on mapping the vector of African trypanosomiasis, and through piloting and producing guidance for research on Sterile Insect Technology (SIT) to control diseases transmitted by Aedes mosquito species. Although TDR has phased out its work on product R&D including the development of medicines for infectious diseases, the research team has continued to support the operational research needed to roll-out new products, such as the production of a package of short drug regimens (ShORRT) for drug resistant tuberculosis and the development of the Health Product Profile Directory (HPPD) integrated into the WHO R&D end-to-end process as a global public health good (GPHG). Additionally, a new drug was approved by the Food and Drug Administration (FDA) against onchocerciasis, moxidectin, which was developed with the previous involvement of TDR.

10. Under research for integrated approaches, TDR-supported research focuses on the interactions between people and their environment that affect disease transmission. Vector control through a multisectoral and One Health approach has been a particular focus of interest. TDR produced several tools to support this area of work, notably a global directory of medical entomology courses and an online platform for Operationalizing One Health as a Transdisciplinary Ecosystem Approach.

11. TDR research has increasingly adopted an intersectional and gender-responsive approach, with the adoption of a Strategy on Intersectional Gender Research and a toolkit. Following this, TDR has supported researchers to incorporate intersectional gender analysis into VBD research and promoted the integration of gender-sensitive research training into Masters of Public Health (MPH) courses.

[2] One challenge, particularly for communicating TDR's strategy, is that research for implementation is seen as an overarching term for the type of research TDR supports but research for implementation and access is also a specific sub-category of that research along with research for policy, research for innovation and research for integrated approaches.

Two case studies from Nepal and Uganda were also produced following the guidance of TDR's toolkit on intersectional gender analysis in research on infectious diseases.

Figure 1: Timeline of key VES, IIR and IMP achievements since the start of the 2018-2023 strategy (items in **bold** are reported in TDR annual reports)

RCS (see Figure 2)

12. TDR's strategy [2] expects all TDR-supported research activities to have a capacity strengthening aspect. TDR also conducts training activities for individuals and capacity strengthening work targeting research training institutions and networks based in low- and middle-income countries. According to the strategy, TDR's research capacity strengthening activities focus on four areas – developing the field of implementation research, developing new research tools, empowering researchers through training grant schemes and strengthening research institutions in low- and middle-income countries.

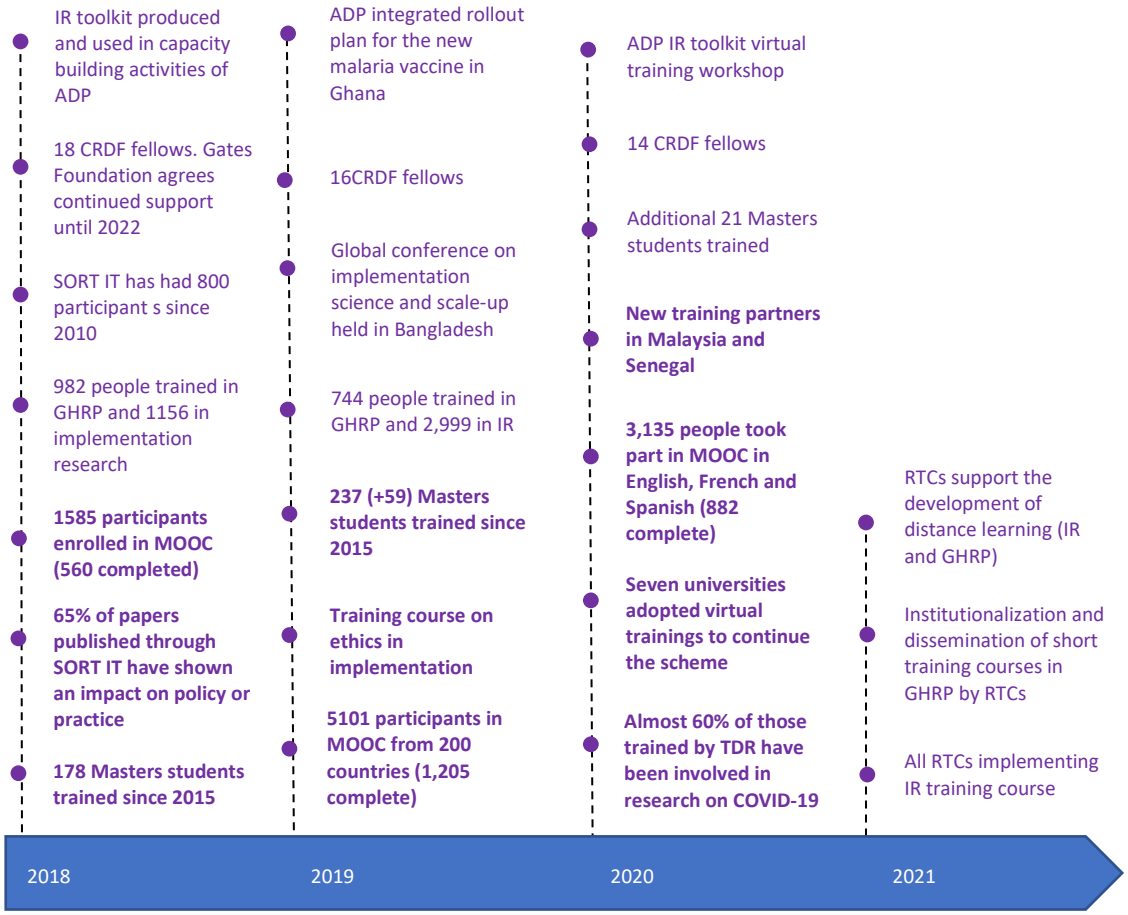
13. In terms of developing the field of implementation research, a major achievement has been the launch of a first worldwide Massive Open Online Course (MOOC) on implementation research through the TDR-supported Regional Training Centres (RTCs) reaching researchers in 116 countries and available in English, French and Spanish.

14. In addition, TDR has also contributed to developing new research tools to complement learning provided by universities and research institutes. An Implementation Research Toolkit was developed and disseminated in collaboration with the Access and Delivery Partnership (ADP) joint initiative with UNDP, PATH, WHO and supported financially by the Government of Japan. Other training materials have been produced over the period, such as a training course on the ethics of implementation research.

15. TDR has also worked to empower individual researchers through training grant schemes in order to contribute to increasing the number of people conducting research for the needs of low- and middle-income countries. The Postgraduate Training Scheme (PGTS) and the Clinical Research and Development Fellowship (CRDF) have been delivered in collaboration with Universities, RTCs and other partners including the private sector. These trainings have been adapted to restrictions, such as "*lockdowns*", induced by the COVID-19 pandemic, by switching to remote ways of working with fellows and students. A survey directed to TDR trainees shows that the training provided by TDR allowed many of them to redeploy their skills to support the COVID-19 response[4].

16. TDR's capacity strengthening efforts have increasingly focused on strengthening research institutions through a regional approach. There is an institutionalization of short training courses in good health research practices (GHRP) and implementation research organized by the TDR-supported network of RTCs, which are also developing remote training modalities. Universities have been supported to develop modules on implementation research and to integrate intersectional gender research into their curriculum.

Figure 2: Timeline of key RCS achievements since the start of the 2018-2023 strategy (items in **bold** are reported in TDR annual reports)



Global engagement (see Figure 3)

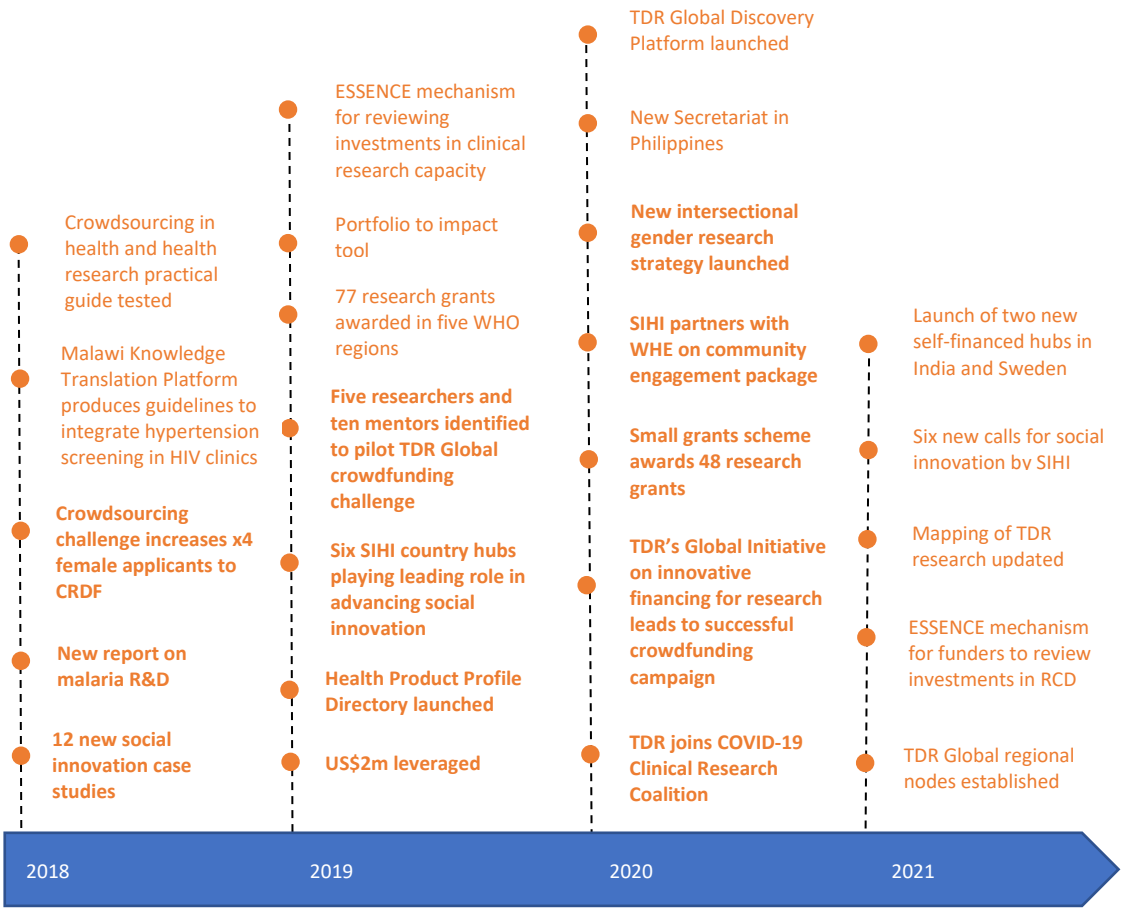
17. TDR's work on global engagement is seen as fulfilling an enabling function for the two other technical areas of promoting research for implementation and capacity strengthening for research, leveraging TDR's networks and partnerships to advance the agenda of implementation research capacity in low- and middle-income countries. Based on TDR's strategy, this work is expected in three areas – shaping the research agenda, strengthening the research system and supporting knowledge uptake. It is seen as including TDR's partnerships and engagement with co-sponsors, funders and other stakeholders.

18. Work on shaping the global research agenda has sought to address the health issues that affect vulnerable populations living with high burdens of disease. The Social Innovation in Health Initiative (SIHI) network, launched in 2014, has been consistently expanding over the period. The different SIHI hubs publish calls for social innovations projects and collaborate with TDR on the development of research tools such as the Social Innovation Monitoring & Evaluation Framework and the research checklist for social innovation. The ESSENCE on Health Research initiative, of which TDR is the secretariat, is a mechanism that coordinates funders and donors of health research in low- and middle-income countries. A recent achievement of this platform has been the creation of a mechanism for funders to jointly review their investments in research capacity strengthening in low- and middle-income countries and to enhance their coordination.

19. Work on strengthening the research system has involved TDR being particularly active in the promotion of equitable access to data, updating the mapping of TDR research, supporting the development of a policy for data sharing and reuse and creating a vision to support open science together with WHO, while continuing the operation of the Ebola Data Platform with the Infectious Diseases Data Observatory (IDDO). Following the launch of the TDR Intersectional Gender Research Strategy, TDR initiated several projects on gender research, for example collaborating with HRP on capacity strengthening for the integration of a gender lens in sexual and reproductive health and rights (SRHR) and infectious diseases research.

20. Work on supporting knowledge uptake has involved facilitating the use of evidence to inform policy. The long-standing small grants programme[3], managed collaboratively with WHO regional offices, has been extended with a regional programme in the Americas in collaboration with HRP and AHPSR. TDR Global, the Alumni network of TDR, has been further developed by establishing regional nodes in three RTCs. TDR Global piloted a research crowdfunding project to bring researchers together with mentors with the aim to identify different ways of getting support for their research ideas.

Figure 3: Timeline of key GE achievements since the start of the 2018-2023 strategy (items in **bold** are reported in TDR annual reports)



[3] Now renamed "*impact grants on regional priorities*".

Extent of fit between the TDR's strategy and structure

21. Two of the three current strategic areas (research for implementation, research capacity strengthening and global engagement) are explicitly reflected in TDR's current structure as its two main technical units (IMP and RCS). Global engagement is not configured as a separate unit. Rather, initiatives under global engagement are led from the Director's office.

22. However, there is not necessarily a complete match between the strategic area to which an activity or initiative contributes and the unit which is responsible for its delivery. This is particularly the case for activities related to research capacity strengthening. Not only are such activities managed by RCS but some also fall under IMP or global engagement. One explanation given is that RCS manages activities with a direct focus on capacity strengthening while IMP or global engagement may have activities with a more indirect or implicit focus on research capacity strengthening. It is not always easy to see this distinction in the types of activities supported. At least part of the rationale behind having some research capacity strengthening activities beyond RCS has been to keep the two units (IMP and RCS) similar in terms of financial size. However, this approach is potentially confusing, for example, in relation to the SORT IT programme which is managed from the Director's office but reports to IMP and largely conducts capacity strengthening activities. Both the IMP and RCS scientific working groups produce recommendations for SORT IT. There is also some duplication in other areas. For example, both IMP and global engagement have produced work on gender and it is unclear how well-coordinated this has been. It does appear that where new and innovative interventions have been introduced, such as SIHI, it has been difficult to incorporate them into existing and established units resulting in a tendency to manage them from PIM or directly from the Director's office.

23. Another area for potential confusion is, in addition to its role in managing TDR's overall portfolio, PIM also directly manages (or "*incubates*") some new initiatives and activities, such as SIHI and TDR Global, under its innovation role. There may be a perceived tension between PIM's role in overall portfolio management and as a third technical unit operating and managing programmes in its own right, particularly when those programmes might be mainly focused on implementation research (e.g. SIHI) or on capacity strengthening (e.g. TDR Global). One issue seems to be that the IMP unit still appears to be largely organized around specific diseases which potentially means that programmes that relate to facilitating and supporting implementation research (SIHI, small grants programme), that are not necessarily disease-specific, may not fit well into IMP as a unit. This may be partly because IMP contains a number of elements from TDR's previous structure, where the research function and disease-specific areas occupied a preponderant role. There is then therefore a risk of IMP being seen as TDR's former way of working while TDR's newer and more innovative approaches are accommodated elsewhere. It is unclear if it PIM is expected to manage particular programmes permanently or if it is intended to be time-limited, for example, in an initial innovative phase.

24. The sixth review [1] expressed concern that there was "*a major risk that the three workstreams operate in silos, without complementarity*" and this was despite the fact that all three units were working on common areas including capacity building and supporting implementation research. Despite this, the review did not consider that this was being done in a particularly coherent way. The review also considered that structural change would be likely to improve the situation but it advocated regular joint working on crosscutting issues and taking opportunities for complementarity. This has happened to some extent, for example, the three units collaborating with SIHI, with involvement from the Director's office, IMP and RCS to develop a MOOC. Gender is considered a crosscutting issue across all units, with work on the gender and intersectionality strategy and toolkit undertaken by IMP and the Director's Office. In addition, members from all units are working on global engagement, and the work on the alumni network mobilization and mentorship efforts are reported under the global engagement stream.

25. However, it is difficult to assess definitively whether there is less silo working now than at the time of the sixth review. Respondents remain concerned that there is relatively little collaboration between IMP and RCS and there is a risk that the Director's office and the PIM, rather than being known for coordinating the overall work of TDR, are seen as separate, rival implementation units with their own projects and activities. In addition, the issue of silos is not only an issue between units. There are concerns, particularly within IMP, that those working on specific diseases do so with little, if any, interaction or collaboration with those working on a different disease even in the same unit.

Effects of the COVID-19 pandemic

26. While considering TDR's key achievements during the early implementation of its new strategy, it is important to bear in mind that this period was affected by the occurrence of the COVID-19 pandemic, during 2020 and 2021, in particular. It is worth noting that some of TDR's key achievements during this period were related to or were affected by COVID-19 (see Figures 1-3). For this reason, COVID-19 has been considered as a crosscutting issue in this review and this is covered elsewhere in this report (see p72).

Review Methods

27. Expectations of the review are outlined in the terms of reference (see Annex 1, p**Error! Bookmark not defined.**). The review is expected to cover a number of areas including focus on research for implementation, research capacity strengthening, global engagement, TDR's revised structure at the end of the WHO Transformation process and future direction 2024 to 2029. The terms of reference identified a number of broad questions to be answered which were structured under six criteria – relevance, effectiveness, efficiency, impact, sustainability and quality of science. The terms of reference also explained methods that might be used by the review including analysis of existing documents, interviews with stakeholders and interviews with TDR and WHO staff.

28. Although it was originally expected that the review would have an inception phase in which the review's design would be further developed and an inception report produced, delays in finalising the contract and expectations of sticking to the original deadlines meant that these plans had to be curtailed somewhat. In particular, the inception period was shortened, a brief inception note was produced in place of a more formal inception report and work on data collection began before formal sign off of the inception note. Nevertheless, during inception, virtual planning meetings were held with TDR's management, unit heads and staff from 3-9 December 2021. Detailed notes of those meetings and the names of those who attended are included in the review's inception note. The main points clarified in the inception note are summarized in Box 1.

Box 1: Points clarified in the review's inception note

- The main purpose of the review is for learning, particularly for the development of future strategy.
- Recommendations of the sixth review would not be restricted only to the issue of relevance.
- The review would be structured around the six criteria identified in the terms of reference.
- Three additional crosscutting issues were identified – COVID-19; gender and equity; and multisectoralism and partnerships. A fourth, climate change, was identified and proposed during the course of data collection.
- The need to learn from other reviews was stressed including, in particular, recent evaluations of HRP and AHPSR.
- It was agreed that, given the COVID-19 context, all interviews would be conducted remotely.
- A revised timeframe was agreed for inception but

29. During the inception period, TDR made available a list of relevant stakeholders that could potentially be interviewed. The review team used this list to modify the list of stakeholders that they had originally proposed. Summary details of the revised and original lists are contained in Table 1. The expectation of the review remained that between 70 and 100 respondents would be interviewed. At the end of inception, a preliminary analysis of respondents identified for interview showed that:

    - Around 59% were male. This was mainly because 79% of respondents identified from governing bodies and advisory groups were male. Excluding these two respondent groups, there was a 50/50 male/female split.
    - There were French (7), Spanish (3) and Portuguese-speaking (3) respondents but the numbers were relatively few.
    - There were 33 respondents from disease-endemic countries.

Table 1: Revised stakeholder list for people to interview during the review

Interviewee group	Estimated number		Actual	Comments
	In proposal	Revised		
TDR Secretariat	20	Max 34	27	Based on their stated preference administrative and capacity building staff were interviewed as a group.
TDR Governing Bodies				
JCB Members	10	18	16	Three members did not respond to requests for interviews and one responded but it was not possible to schedule an interview. One additional respondent, the chair of the HRP Board, was added to this group.
JCB Co-sponsors		0	N/A	Included as members of the Standing Committee.
JCB Observers		17	9	Five observers did not respond, one requested the questions by email but did not then respond, one declined to be interviewed and one responded that they were too busy to be interviewed during the period specified and did not respond to the suggestion of a later date. In one case, a respondent was accompanied by a colleague .
Standing Committee	4	6	7	These are the chair and co-chair of the JCB and the four co-sponsors. One of the co-chairs was interviewed with a colleague.
Advisory Committees				
STAC	10	1	1	The chairs of these committees.
Research for Implementation SWG		1?	2	
Research Capacity Strengthening SWG		1?	1	
WHO regional office focal points	6	6	6	
WHO departments/special programmes/division	17	5	8	In the case of HRP, a second person was interviewed on the suggestion of the Director. We also spoke to the Head of the WHO Academy.
Partner organizations	0	4	13	Two potential interviewees did not respond.
Other donors (not on JCB)	0	6	1	
Individual trainees and grantees	0	?	12	In the case of two potential respondents, it was not possible to schedule interviews despite them responding positively to the initial request.
Approximate total	**98**	**Max 99**	**103**	

30. Once the review team had identified respondents they wished to interview, TDR sent them an explanatory email introducing the review and the review team. The review team then contacted potential respondents and scheduled the interviews directly with them. Most interviews were conducted in the period December 2021 to January 2022. Where no response was received, at least one follow-up email was sent. At the end of January 2022, a list of proposed respondents that the team had been unable to interview was shared with TDR and it was agreed that no further efforts would be made to contact and interview these people. Each interview was conducted by one of the review team members. Almost all interviews were conducted in English based on an informal topic guide. Where respondents asked for more details of the topics to be discussed, they were provided with the terms of reference, list of questions and/or an email explaining particular topics to be discussed with them. Interview notes were compiled by the team member conducting the interview and stored in a DropBox folder to which both review team members had access.

31. Table 1 also contains details of the number of respondents in each group interviewed. More details of respondents are provided in Annex 2 (p99). In total, 103 respondents took part in individual or group interviews for the review. This was just above the upper end of what was planned in the inception note and was more than the 70 interviewed for the sixth review.[1] The demographics of the group were pretty much as outlined in the inception note, that is 41 (49%) were women, eight were French speakers, three were Spanish speakers, two were Portuguese speakers and 33 were from disease-endemic countries. In analysing responses, the team attempted to distinguish responses from different respondent sub-groups.

32. A range of documents were provided by TDR and additional documents were suggested or provided by interviewees. A full list of documents reviewed is included in Annex 3 (p102). Specific documents referenced in the text are noted by blue numbers in square brackets, e.g. [1]. These contain links to more details of the documents as endnotes. Documents were provided through a Sharepoint folder to which both team members had access. Types of documents included the programme's theory of change; annual reports; previous reviews of TDR; reviews of other research entities and a review of TDR activities with those entities; reports of the R&D pooled fund; the TDR strategy; TDR programme budget and workplans; policy documents; TDR performance framework; risk management reports; other financial documents; documents relating to research capacity strengthening; research and global engagement; documents relating to the JCB, Standing Committee and STAC; and documents relating to WHO regional office collaboration.

33. Following completion of the majority of the interviews, the two team members met virtually for two days from 2-3 February 2022. The meeting was structured around a proposed outline for the final report and each section was discussed in turn, identifying relevant sources of information, e.g. specific documents and interviews, and where additional information was likely to be needed. It was agreed which team member would develop the initial draft of which section. A list of topics was developed to discuss and check with the TDR Director and the TDR management team. These meetings were held on 7 and 11 February respectively. Following this meeting, a final draft of the report was produced and the summary of this was presented to and discussed with TDR's Standing Committee on 26 April 2022. After this, TDR hired an editor, Janet Neubecker, who produced editorial suggestions which were considered for inclusion by the review team.

34. As with previous reviews, and in common with other reviews of this nature, the review has some limitations related to the number of interviews undertaken and the time and resources available for the review. There were some particular issues related to the need to shorten the inception period. For example, some suggestions for how the review might be conducted, including who might be interviewed, came too late to be reflected in the review's methods. In addition, because the review was conducted during the COVID-19 pandemic, and when many countries were experiencing an upsurge in cases due to the omicron variant, all interactions for the review had to be conducted virtually. However, it is the team's view that these limitations do not adversely affect the rigour of the review.

Background to the Review

35. In preparing for this review, the team considered previous reviews and evaluations of relevance to TDR and this section briefly considers those, particularly recommendations of relevance to TDR.

The sixth external review [1]

36. The sixth external review produced 12 major recommendations, along with a number of more detailed recommendations which were embedded throughout the report. TDR produced a management response [5], presented as a background document to the 39th session of the JCB, which responded to all the major and detailed recommendations. All of these recommendations were accepted implicitly. as reflected in the management response. Recommendations and implications of the review were also discussed during the JCB session. Annex 4 (p111) presents an assessment of the extent to which the major recommendations of the sixth review have been implemented. Based on information provided to the review, it appears that the majority of the major recommendations (9 of 12) have been fully implemented (green), and the remaining three were either only partly accepted or have been partly implemented (yellow).

37. It appears that TDR did not fully accept the sixth review's recommendation of the need for a dedicated staff member focused on resource mobilisation. However, this is not completely clear from the management response which does not state explicitly whether recommendations are accepted, partially accepted or rejected. The sixth review had a recommendation related to the relevance of TDR to the co-sponsors and this issue is considered in more detail in this review (see paragraph 49 and Box 3). More could still be done to explain how TDR's work is relevant to the co-sponsors and to identify ways in which TDR and its co-sponsors can gain mutual benefit from the co-sponsorship arrangement. In addition clarification is needed as to whether the recommended review of scientific working groups has occurred. If it hasn't, TDR may wish to explain why and whether they still intend to conduct such a review. If some form of internal review took place, it would be good if this were documented.

HRP [6] and AHPSR [7] evaluations

38. In recent years, HRP and AHPSR have both undertaken external evaluations that have made reference to TDR.

39. The HRP evaluation noted that collaborations with TDR had intensified through the inception of a joint short-course training in research methods and that TDR has a larger portfolio and a larger share of its budget dedicated to research capacity strengthening than HRP. It called for this collaboration to be pursued and intensified alongside HRP's own research capacity building efforts on SRHR research. The evaluation considered the option of merging the RCS components of the TDR, HRP and AHPSR programmes to offer training on basic implementation research skills but was concerned that doing so might be difficult on the basis that TDR and HRP's fields of work (diseases of poverty and SRHR) require different research skills in some areas and that the two programmes have distinct approaches to capacity strengthening. TDR's approach was perceived as focusing on individual capacity building while HRP's was described as institutional capacity building. While it is true that TDR has a strong component of individual training programmes, there is also an institutional capacity strengthening component, through the institutionalization of RCS activities in the RTCs and partner academic and research institutes. Moreover, TDR's individual training programmes tend to be embedded in the institutional RCS efforts and managed through partner institutions.

40. The AHPSR evaluation noted, in relation to joint work on RCS, that collaboration had been weaker with AHPSR than between HRP and TDR. It considered that the new situation of the three research programmes within the WHO Science Division provided an opportunity to further develop collaborations between them. The evaluation also discussed the implication of this new situation for the AHPSR's governance structure, comparing it to the two other research programmes. Those are termed "*special programmes*" because of their co-sponsorship model, which the AHPSR does not have. The evaluation also suggested a set-up inspired by the newly created Special Programme on Primary Health Care (PHC), which is fully embedded in WHO and has no co-sponsorship structure.[4] The option of embedding AHPSR within WHO while retaining an independent STAC structure was proposed, while highlighting the associated risk of decreased dedicated funding.

41. Both evaluations are of relevance to TDR's future strategic direction in terms of the options they present for adapting their structures and governance within the Science Division and in terms of developing collaboration on RCS programmes between the three institutions. This underlines the need to involve HRP and the Alliance in the next strategic development process of TDR (see Conclusion 1 and Recommendation 1.1).

Other reviews

Other reviews and evaluations of interest include:

- A *survey* conducted in 2020 examined whether those trained through the PGTS, the CRDF, and the SORT IT programmes were involved in the COVID-19 response. Results of this are presented in the crosscutting section on COVID-19 (see paragraphs 247-248).

- The *WARN-TB/CARN-TB review* concluded that the networks were effective in supporting the identification, design and implementation of research programmes in the region and contributed to better sharing of experiences, strategies and results in order to explore the feasibility of applying them across countries. An evaluation of this programme is underway at the time of this review.

- A *review of the Small Research Grants Scheme* conducted in 2020 covered 44 WHO partner countries delivering 162 projects between 2014 and 2019. The review issued a number of recommendations, in particular the need for building learning and knowledge sharing into the project cycle for each grant; identifying common research themes emerging across regions and compiling those in different topic areas as a TDR "*public good*"; documenting and compiling policy engagement processes resulting from projects; conducting a debriefing process for each project to capture transferrable results; and creating TDR knowledge and learning products that present approaches and practices tested in projects.

- A *mapping of RCS initiatives* aimed at providing a picture of the range of implementation research courses by mapping recent and ongoing implementation research training efforts globally. Based on its findings, a number of recommendations were issued, namely to prioritize team-based approaches and collaborative research; enable programme implementers to illustrate how their skills and backgrounds contributed to implementation research successes; combine "*training by doing*" programmes and twinning experiences with established online implementation research trainings; build institutional capacity and demand through integrating implementation research

[4] WHO does not appear to have a clear definition of what constitutes a special programme. Respondents explained that previously it had been considered that the term special referred to co-sponsored programmes but the example of the Special Programme on Primary Health Care does not support that as this is a special programme without co-sponsors. In this case, the special nature seems to relate to the fact that it is not intended to be a single programme or unit within WHO but is expected to pull together contributions from multiple WHO programmes, units and departments.

with established monitoring, evaluation and learning systems; and create specialized training modules to fill gaps in content.

- *Two recent surveys* provided/will provide data to assess progress against indicator seven of the performance framework for 2018-2023 "*number of TDR grantees/trainees per year, and proportion demonstrating career progression and/or increased scientific productivity, disaggregated by gender*". First, a review of the CRDF's contribution to researchers' careers recommended i) further engagement with home institutions and ii) developing a formal framework for the development of transferable professional competencies such as leadership and knowledge transfer. Second, a survey of TDR Global, currently underway, aims at tracking career progression of TDR grantees in terms of employment and academic, scientific and policy contributions.

- *Two evaluations of RTCs* were conducted (Research Institute of Tropical Medicine (RITM) in Manila, Philippines, and Institut Pasteur in Tunis, Tunisia). The evaluation of RITM contributed to TDR's decision to end its collaboration with that centre. Other evaluations of RTCs have been postponed because of travel restrictions related to COVID-19.

- A strategic review of TDR communications was conducted in 2019 and this included a review of documents and interviews with 48 stakeholders. [8]

Findings

42. As outlined above, this section of the report is structured around six evaluation criteria (relevance, effectiveness, efficiency, impact, sustainability and quality of science) and four crosscutting issues (gender and intersectionality, partnerships, climate change and COVID-19). This differs somewhat from previous reviews. For example, in the sixth review [1], analysis against the evaluation criteria of relevance, effectiveness, efficiency, impact and sustainability was included as sub-sections in other sections of the report, e.g. on governance (pp30-32); the Secretariat (pp69-71); research capacity strengthening and knowledge management (pp88-90); vectors, environment and society; (pp100-102) and intervention and implementation research (pp111-112). Quality of science was considered in the sections on vectors, environment and society (p102) and intervention and implementation research (p114).

Relevance

43. Throughout much of its history, TDR has been extremely relevant with a clear and strong focus on a group of diseases which were important in terms of morbidity and mortality, particularly in low- and middle-income countries, but that were often overlooked in terms of funding and other resource allocation. As a result of this and its excellent reputation, TDR was able to attract more funding but, at the time of the fifth review, it was considered to have lost focus and to be facing financial difficulties. Some respondents, recalling that time, considered that TDR had lost relevance in some of the areas in which it was working as a result of lacking a clear strategy to guide what it would and would not do.

44. Since then, TDR has established a clearer strategic focus albeit one that differs from its earlier focus on product development. This is described in its 2018 to 2023 strategy [2] as covering three areas – (implementation) research[5], research capacity strengthening and global engagement. Implementation research is defined as "*the systematic approach to understanding and addressing barriers to effective and quality implementation of health interventions, strategies and policies. It is driven by a range of stakeholders, such as healthcare practitioners, policy-makers, researchers and community members, all working together to frame the research questions based on local needs, conducting the study and implementing the results.*"[6] When defined like this, implementation research should be intrinsically relevant as it is based on local needs and conducted by a local multidisciplinary team with results being implemented by the same team.

45. One of the features of TDR's approach to research capacity strengthening is working through a number of RTCs[7] located in low- and middle-income countries in different regions including Africa, Asia and Latin America. RCS report that they conducted a mapping exercise [9] of available training programmes on implementation research finding that most of them were located in high-income countries. They concluded that the TDR portfolio was the only one so explicitly focused on low- and middle-income countries. Other distinctive features of TDR's training on implementation research included focusing on a team rather than individuals, focusing on implementers rather than academics

[5] This area in the strategy is called "*TDR Research*" but the description and definitions that follow indicate that the focus is implementation research. But, it is a little confusing as to whether implementation research/research for implementation describes all TDR's research or only one part as it is broken down into four categories research for policy, research for implementation and access, research for innovation and research for integrated approaches.

[6] Although this definition is reasonably clear, it is a bit unclear whether this definition of implementation research has four sub-categories in the strategy (research for policy, research for access and implementation, research for innovation and research for integrated approaches) or whether implementation research is limited to only the second of these.

[7] Based on the RCS Annual Report 2020, there are six RTCs – the Centro Internacional de Entrnamiento e Investigaciones Médicas in Colombia, the Institut Pasteur de Tunis in Tunisia, the School of Public Health at the University of Ghana, Astana Medical University in Kazakhstan, the Gadjah Mada University in Indonesia and the Malaysian Global Health Consortium. The Regional Training Centre in Malaysia is relatively new as TDR decided not to continue with the Research Institute of Tropical Medicine Manila in the Philippines following an evaluation report. In addition, TDR is working with a sub-regional centre, established specifically for French speakers, at the Université Cheikh Anta Diop in Senegal. Sometimes, this sub-regional centre is counted as an RTC and this explains why some reports refer to TDR working with seven RTCs.

and training by doing. In addition, of the trainings reviewed, TDR's Massive Open Online Course (MOOC) was distinctive in being available in both French and Spanish in addition to English. This scanning study has been used as the basis for developing a new Implementation Research Training Framework for TDR. [10]

46. While some respondents expressed the view that it was more difficult to see the clear strategic focus behind TDR's global engagement work, it is possible to argue that the 2018-2023 strategy sees this as a way of bringing the voices of vulnerable populations living with a high burden of disease to the global health community in a way which allows them and their priorities to shape research agendas, to make access to information and data fairer and more open, and to allow their knowledge and learning to be shared more broadly.

47. There is a clear understanding of TDR's strategic niche, particularly in relation to implementation research and research capacity strengthening, among TDR's closest stakeholders which includes some staff, partners, funders, trainees and grantees. However, this understanding is not shared by all respondents with some interviewees explaining that they are not completely clear as to what TDR does and what value it adds. This perhaps points to a continued need for TDR's strategic niche to be communicated and translated to a broader audience. In addition, there are some respondents who clearly do not welcome or agree with the strategic direction that TDR is taking, pointing positively instead to approaches taken in the past. They point out quite rightly that many of TDR's greatest successes, e.g. on bednets for malaria, onchocerciasis and visceral leishmaniasis were with approaches that TDR would not necessarily use now, not least because the context has changed and there are many more actors in a space that TDR once occupied alone. Indeed, where TDR is still working in some of these areas, those approaches might be considered as "*legacy projects*". One implication of TDR's current approach, which might need to be better understood by some stakeholders, is that TDR may not have the kind of high-profile successes it had previously but that its future successes would likely be achieved through others at country and local levels. Details of how WHO's disease programmes understand TDR's relevance are presented in Box 2.

Box 2: How do WHO disease programmes assess TDR's relevance?

WHO's TB programme has an extremely close collaborative relationship with TDR. They effectively work as one team with TDR supporting operational research that the TB programme cannot. In this regard, they see TDR's work as highly relevant.

WHO's malaria programme recognizes that TDR has been a hugely influential programme but they also acknowledge that the context is vastly different now than it was years ago with many actors in the field, such as the Gates Foundation, the Global Fund, the EU and the National Institutes for Health. This includes some actors who are very active on operational research such as Unitaid. In this context, the WHO malaria programme finds it more difficult to see TDR's relevance in relation to malaria and there is a risk of it becoming irrelevant.

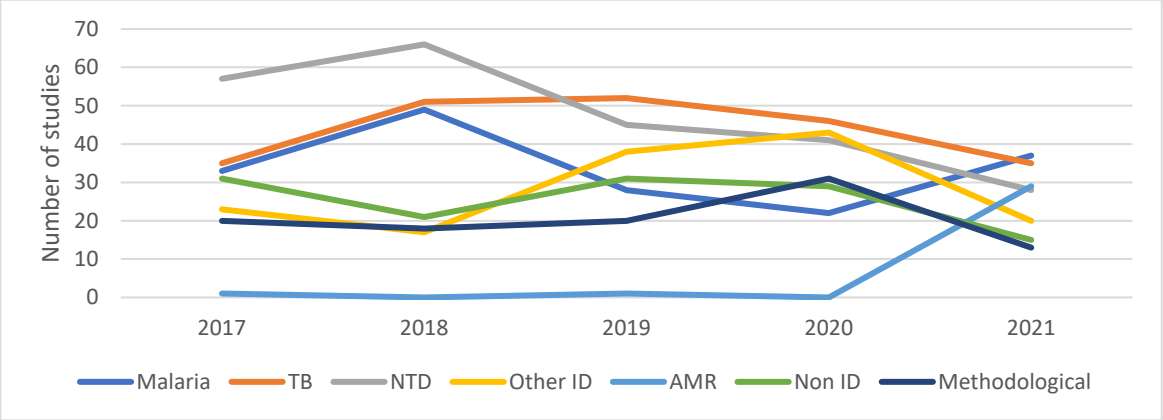
WHO's neglected tropical diseases programme used to work closely with TDR but the relationship is less close now not least because of the emergence of other players, such as the Coalition for Operational Research on Neglected Tropical Diseases (COR-NTD). However, COR-NTD is closely linked to particular funders and only focuses on certain NTDs, principally those that can be targeted by mass drug administration (that is lymphatic filariasis, onchocerciasis, soil-transmitted helminths, schistosomiasis and trachoma). Given this, there would be scope for TDR to focus on NTDs not covered by COR-NTD though that is not currently the case. It is not clear if TDR's priorities on NTD research reflect the department's road maps but, if they do not, they may be considered to lack relevance to the department's work.

48. One issue on which there is a high level of consensus is that the concept of "*tropical diseases*" is outdated and no longer relevant and is outdated. Indeed, TDR itself now rarely uses the term referring more often to diseases or infectious diseases of poverty. Some respondents emphasized the point that, in TDR's strategy, the focus is not really on specific diseases but on vulnerable populations who face a high burden of disease, particularly infectious disease. The strategy argues that prioritization criteria based on an understanding of those who TDR seeks to serve will help keep the programme's work relevant and the strategy points to a number of areas of TDR's work (e.g. antimicrobial resistance; emerging infections and outbreak preparedness; and vector control strategies) as evidence of this. However, the term "*tropical diseases*" is embedded within the programme's initials and formal name. This may cause confusion with staff reporting that they are sometimes introduced as coming from "*Tropical Diseases Research*".

49. TDR is a co-sponsored programme and the question arises as to how relevant TDR is to each of those co-sponsors. These matters are briefly discussed in relation to each co-sponsor in Box 3.

50. Figure 4 illustrates the number of TDR publications per year from 2017-2021 analysed by main area of focus based on title of publication. While the number of publications on malaria (blue line) and TB (dark orange line) have remained fairly constant, the number of publications focused on NTDs (grey line) fell from a peak of 66 in 2018 to 28 in 2021. Nevertheless, papers focused on these three areas accounted for 61% of all TDR publications (625 of 1,026) and this varied from just over half (51%; 109 of 212) in 2020 to three-quarters (75%; 166 of 222) in 2018.

Figure 4: Number of TDR publications by main area of focus based on title: 2017 to 2021



51. There were 29 papers published on antimicrobial resistance in 2021 as compared with only two in the previous four years. This meant that, in 2021, other infectious diseases, including antimicrobial resistance, accounted for over one quarter (28%; 49 of 177) of TDR publications as compared to 12% (24 of 200) in 2017. It appears that this "*spike*" is related to a number of papers being published as a result of SORT IT training focused on AMR.

Box 3: How do co-sponsors assess TDR's relevance?

UNDP considers TDR as an important partner and collaborator. TDR and UNDP have worked together on the Access and Delivery Partnership (ADP) since 2013 and UNDP also appreciates the opportunity to participate in TDR's governance structure. UNDP considers "*tropical diseases*" to have been highly relevant during the COVID-19 pandemic and expects them to remain so.

UNICEF appreciates TDR's structured processes, for example in reviewing terms of reference and proposals but, at times, has not always found it easy to understand how co-sponsors, in general, and UNICEF, in particular, might engage with TDR's work. Co-sponsors have tended to do their own activities independently and this tendency still exists. UNICEF would welcome the opportunity to work on joint projects with TDR, and they are now collaborating on the development of a handbook on implementation research for decision-makers. TDR's perceived focus on TB, malaria and NTDs risks making their work less relevant to UNICEF given its focus on maternal and child health. The focus of the research entities (AHPSR, HRP and TDR) on specific topics and diseases potentially causes segmentation and fragmentation and limits their relevance for UNICEF who would like to see countries developing their own research agenda irrespective of subject matter although presumably they would be most interested in a focus on maternal and child health.

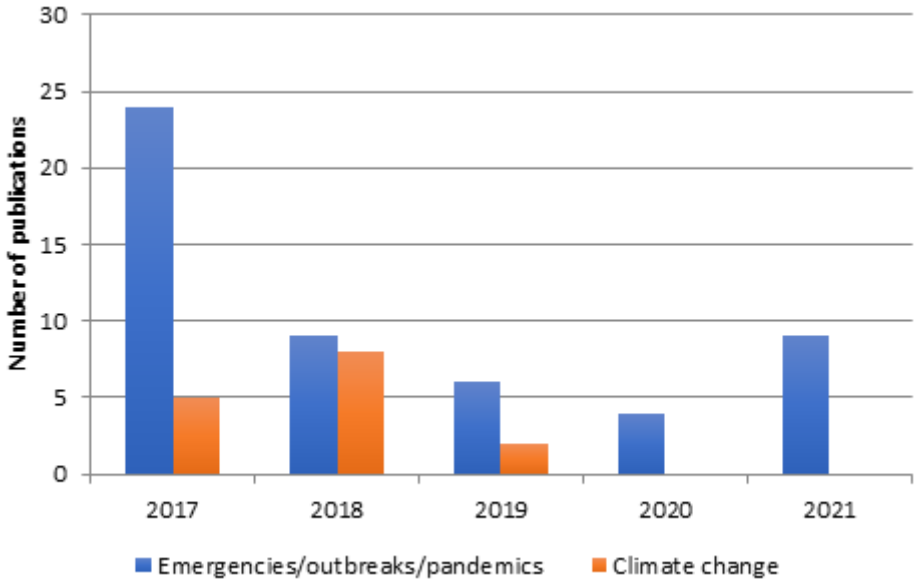
The partnership the World Bank has with TDR is the World Bank's most longstanding but the context and TDR's role have both changed dramatically since that time. There is an overlap of interest in what TDR calls implementation research and the World Bank refers to as applied research and delivery science. However, the World Bank sees collaboration in this area occurring at the level of individual countries. The World Bank would like to see more of TDR-generated knowledge influencing national policy but is unclear how this can be done from outside the country. One thing they would like to see more of, through TDR's approach to global engagement, would be engaging with major actors, such as the Global Fund to get them to adopt TDR-generated knowledge. Initially, TDR was very relevant to the World Bank but this relevance is now challenged and questioned within the bank. To respond to this challenge and these questions, it will be important to define TDR's value added and partnerships in relation to the co-sponsors and this will require detailed discussion with each co-sponsor individually. Each co-sponsor has different needs and priorities so they cannot all be approached in the same way.

Some elements of TDR's relevance to WHO have already been considered in relation to disease-specific programmes (see Box 2). There are particular concerns within WHO about the relevance of the concept of "*tropical diseases*" and, while the shift to infectious diseases of poverty is better, there are still concerns that TDR's focus may be limiting relevance to some low- and middle-income countries, such as those who are shifting their focus more to non-communicable diseases. For example, TDR's work on gender and intersectionality was good but the question arose as to why it should be limited to infectious diseases of poverty. As with the World Bank, WHO mostly sees TDR's relevance in terms of responding to regional and particularly country priorities and needs. In terms of WHO's regions, AFRO notes that there are many actors on health research, even within WHO. AFRO considers that TDR's specific niche relates to "*tropical diseases*" and also to approaches such as capacity building, implementation research and uptake of research. AFRO considers that tropical diseases and TDR's distinctive approach are both very relevant for their region. AMRO/PAHO works more closely with TDR than other research entities (such as HRP and AHPSR) because of the focus on infectious diseases which are particularly relevant to the region. EMRO believes that the process of research priority setting should be relevant to the current context including COVID-19 and preparedness for other emergencies and pandemics. It is possible to maintain a focus on malaria, TB and NTDs but it will be important to understand how they intersect with emerging diseases and social conflict. EURO appreciates the close working relationship and sees TDR's work as relevant and adding value particularly in the area of building capacity. In SEARO, TDR is seen as crucial in relation to research on infectious diseases, particularly NTDs. The SORT IT programme is particularly relevant as it seeks to use research for policy action. TDR was also important in helping SEARO set a research agenda for COVID-19 which not only focused on COVID-19 itself but also its effects on other parts of the health system. For WPRO, most health operational research has needed to be adjusted in light of COVID-19. As TDR was not a major player within the pillar on research and evidence within WHO's Incident Management Support Team (IMST) they may have missed an opportunity to ensure the relevance of their work, particularly in the last two years.

52. In terms of publications addressing emerging themes, such as emergencies/outbreaks/ epidemics/pandemics and climate change, based on analysis of title, there were a total of 52 related to emergencies/outbreaks/epidemics/ pandemics, of which most (29, 56%) related to Ebola and nine (17%) related to COVID-19. It may be that there is a time lag related to papers focused on COVID-19 and more may be published this year and subsequently. There were fewer publications focused on climate change (15). Of these, two-thirds (10, 67%) related to the impact of climate change on vectors while four (27%) related to adaptation to climate change.

53. One of the implications of TDR's strategic focus on research capacity strengthening and implementation research is that research priorities and research agendas should increasingly be set at local level. While some stakeholders are concerned that TDR's focus on "*tropical diseases*" might limit this ability, evidence from TDR publications indicates that TDR is publishing papers beyond the areas of TB, malaria and NTDs, including in relation to other infectious diseases and non-infectious diseases. However, still the majority of published papers remain in the core areas of malaria, TB and NTDs. As noted, the rise in number of papers related to antimicrobial resistance in 2021 relates to support provided in that area through SORT IT. As noted above, some TDR publications do reflect emerging priorities, such as emergencies/outbreaks/ pandemics and climate change but the number of these has not particularly increased from 2017-2021. Indeed, the review team did not identify any papers with a title related to climate change in either 2020 or 2021 (see Figure 5).

Figure 5: Number of TDR publications with titles relating to emergencies/outbreaks/pandemics and climate change: 2017 to 2021



54. While the TDR Secretariat argues that TDR no longer has a specific disease focus and that the high proportion of published papers on TB, malaria and NTDs reflects local/national priorities, it is difficult to determine the extent to which this is the case as it is clear that emergence of other topics, e.g. climate change and AMR reflects specific TDR projects. The publication statistics clearly show that there is some flexibility within TDR to support research that may lie beyond the parameter of "*tropical diseases*". However, it is also clear that respondents consider that TDR's main focus remains on malaria, TB and NTDs regardless as to whether these are called "*tropical diseases*" or "*infectious diseases of poverty*". Respondents recognized the value of TDR identifying priority areas for research and that such priority areas might need to include topics such as emerging diseases, particularly those that can cause outbreaks and may have pandemic potential, and issues relating to climate change. Respondents considered that TDR's focus on the intersection between infectious disease and poverty fitted well with a focus on climate change and that there was a need to show how TDR could work to mitigate climate change at community level.

55. Respondents identified a few key principles relating to ensuring TDR's relevance:

- TDR needs clarity over its added value and this needs to be clearly understood by all TDR's stakeholders.
- TDR needs to ensure that its partnerships contribute to that added value. This may involve reviewing current partnerships and considering engaging in a wider range of partnerships including with new players and actors.
- Sharing information on lessons learned with key global partners, including high-income countries, in ways which are relevant to and make sense to them. To achieve this, there may be need for TDR's knowledge products to have a higher profile. It is crucial to communicate with partners, including funders, in ways which make sense to them, for example explaining the mutual benefits of dealing with infectious diseases of poverty.
- Promoting country ownership, decentralisation and working with local organizations and people.

Effectiveness

56. TDR has a clear performance framework [11] which it uses as the basis for monitoring its performance and hence its effectiveness. The framework is divided into four parts. The first part presents the purpose, approaches and principles, the second the results chain and key performance indicators, the third monitoring and evaluation processes and the fourth how monitoring and evaluation findings are used for organizational learning. There is a summary table which shows expected results and KPIs at different levels – impact, outcomes and outputs. One of the distinctive features of the performance framework is that it identifies KPIs for five areas of core values – equity, effective multisectoral partnerships, value for money, quality of work and sustainability of outcomes. There are also KPIs for two areas of management performance – effective resource mobilization and management. Another very positive element is Part III which identifies who does what in terms of monitoring the performance framework.

57. For planning purposes, TDR produces a two-year (biennial) programme budget and workplan. [12][13][14] This document provides context and an overview and explains the programme budget cycle and TDR's strategic direction and objectives. It then provides a budget overview before explaining how results will be measured. The detailed budget and workplan are presented in an annex. For each strategic work area, the annex presents expected results and deliverables, indicators and targets and two budget scenarios disaggregated by designated and undesignated funding.

58. TDR produces each year a results report [15][16][17], an annual report [18][19][20] and separate reports for each work area. Financial reports are produced on a two-yearly (biennial) basis. The results reports are structured to provide systematic reporting against KPIs at different levels. This is done in the form of a table with explanatory narrative and illustrative examples. There is a final section on lessons learned and then a number of annexes including a list of publications, a list of tools generated with TDR support (2019 only), a leverage estimate (2019 only), an assessment of progress on TDR's expected results and details of TDR's revenue. The annual reports are more narrative in style but are also structured systematically around main work areas covering research for implementation, research capacity strengthening and global engagement. There is also a section on governance, financials and performance. In addition to these formal reports, which stakeholders value, some respondents commented positively on moves to make TDR data more readily available through e-TDR. This means that stakeholders can get specific information that they need to report back to their own constituencies in a more tailored manner.

59. Annex 5 (p115) briefly summarizes targets and data reported to date for all levels. Colour coding (green on track, yellow slightly off track, amber off track, red unlikely to be met) has been added by the review team to assess performance against what might be expected. This is easier for annual targets or end-of-biennium targets than for cumulative end-of-strategy targets because of the absence of interim milestones. The assessment was therefore done based on the assumption of uniform progress.

60. In terms of implementation research, TDR has two key performance indicators. The first relates to innovative knowledge and new/improved solutions or implementation strategies developed. The target was to develop 25 of these over six years and this target was reached by the end of 2019, that is within two years instead of six. Box 4 briefly summarizes the products reported by TDR under this indicator. The second indicator relates to the number of research data sets/platforms that are either open access or with an access permission level. Although there was no progress on this in 2018, there has been substantial progress since although this was mostly due to data sets/platforms with an access permission level rather than being open access. Nine data sets/platforms are reported against this indicator but it is difficult to identify what these are from the narrative provided in the 2020 results report. A number of databases and platforms are mentioned.

61. In terms of research capacity strengthening, TDR has two KPIs although the second is split into two parts. The first KPI relates to the number of disease-endemic countries' institutions and networks that demonstrate expanded scope of activities, an increase in funding from other sources or that have influenced research agenda, policy and practice, as a result of or related to TDR support. The target for this was five institutions or networks over six years and this target was exceeded within two years. Achievements reported under this indicator relate to:

    - Disease-related networks, such as the Central African Regional Network for TB control; the Western African Network against Arboviruses; the Caribbean Network for Vector Control; an informal network of countries involved in research on the causes of residual malaria; and the Worldwide Insecticide Resistance Network.
    - A community of practice on the topic of the impact of climate change on health.
    - The professional membership scheme organized through the Global Health Network.
    - Social Innovation in Health Initiative hubs, specifically the hub in the Philippines and the expansion of hubs including to Ghana, Honduras, Indonesia, Nigeria and Rwanda.
    - Specific institutions, such as the Gadjah Mada University in Indonesia and the University of Health and Allied Sciences in Ghana.

Box 4: Examples of innovative knowledge and new/improved solutions or implementation strategies developed by TDR: 2018-2020

Many of these were disease-specific including for visceral leishmaniasis, malaria and TB while others related to vector control more generally. There were other materials which relate more generally to improving clinical management.

There were a number of materials relating to climate change including some that were disease-specific, some that related to vector-borne diseases as a group and some that were more generic. There were also materials focused on gender and equity, health systems and responses to COVID-19.

Materials have included guides and tools/toolkits. There have also been databases and directories, such as the Health Product Profile Directory. TDR has also used innovative challenge competitions to crowdsource ideas to address the problem of lack of gender equity and to build capacity for crowdfunding for infectious disease research. TDR has also supported the establishment of various hubs and networks.

Quite a number of the materials relate to research capacity strengthening.

62. The first part of the second indicator relates to the number of TDR grantees/trainees per year. The target for this was 150 per year and, at first glance, it appears that this has been comfortably met. But, the figures are misleading as the target is per year and the number reported is cumulative. The annual figures are presented in Table 2. It is clear from these that the target of 150 was only met in 2019 but the numbers trained (451 after three years) are on track to result in 900 people being trained over six years. Figures in 2020 were adversely affected by COVID-19 which largely precluded face-to-face training. It is worth noting that figures trained through RTCs or MOOC are not included in figures reported against this indicator as this indicator does not really cater for training of this nature.

Table 2 Numbers reported for indicator 7: 2018-2020

	2018	2019	2020
Students entering the postgraduate training on implementation research	50	77	54
Researchers receiving small grants	58	68	
New fellows in the Clinical Research and Development Fellowship scheme		16	
SORT IT scheme		128	
Contracts and grants	189		
Regional Training Centres – good research practices		769	
Regional Training Centres – implementation research		1,265	
Massive Open Online Course on implementation research		>5,000	c1,277
Total (target 150)	**108**	**289**	**54**

63. The second part of the indicator relates to the proportion (of those trained) demonstrating career progression and/or increased scientific productivity, disaggregated by gender. This part does not yet seem to have been reported on. In 2018, it was reported that a survey would be carried out in 2019 and 2020, and, in 2019, it was reported that this would be carried out in 2020. In the 2020 results report, this survey is not mentioned. However, in 2018, an evaluation was conducted of support provided through the CRDF. This found that fellows had increased their clinical research competencies as expected and, more unexpectedly, had gained transferable professional skills in scientific leadership and knowledge translation. Some barriers were identified and these were found around engagement with home institutions and reintegration of fellows following the training period. [21] TDR is currently in the process of analysing a study of those who have benefited from TDR postgraduate training and it appears that this is the survey referred to in the 2018 and 2019 results reports. There are also many positive anecdotal examples of individuals who have benefited from TDR-supported postgraduate training in a variety of ways. [22]

64. One question arises regarding the relative benefits of different types of training supported by TDR. This question is of particular importance given that TDR has already decided to move away from supporting PhDs and is supporting more virtual and short-course training, not least because of COVID-19. But, should this trend continue post-COVID-19? There are perhaps five factors which could be considered here namely (1) what are the benefits, (2) who benefits, (3) how many people benefit, (4) what are the costs and (5) could similar support be obtained from elsewhere. In the absence of the survey mentioned above, it is difficult to answer the first question definitively and, if the survey only covers those receiving long-term training, it will only partly answer this question. There may be need for another survey to assess the benefits experienced by those undergoing short courses. Anecdotally, the benefits of longer-term training (e.g. support for PhDs, Masters and Fellowships) are considerable with many trainees going on to occupy influential positions in government ministries, disease programmes and international organizations. In many cases, there are spillover benefits beyond the individual trained, for example, trainees offering training and mentoring to others. There is perhaps less evidence of the benefits of shorter courses but this may be because evidence has not yet been collected systematically. There is particular evidence of the benefit of SORT IT, PGTS and CRDF in relation to responses to COVID-19 with trainees able to "*pivot*" the skills they learned towards COVID-19 (see paragraphs 247-248).

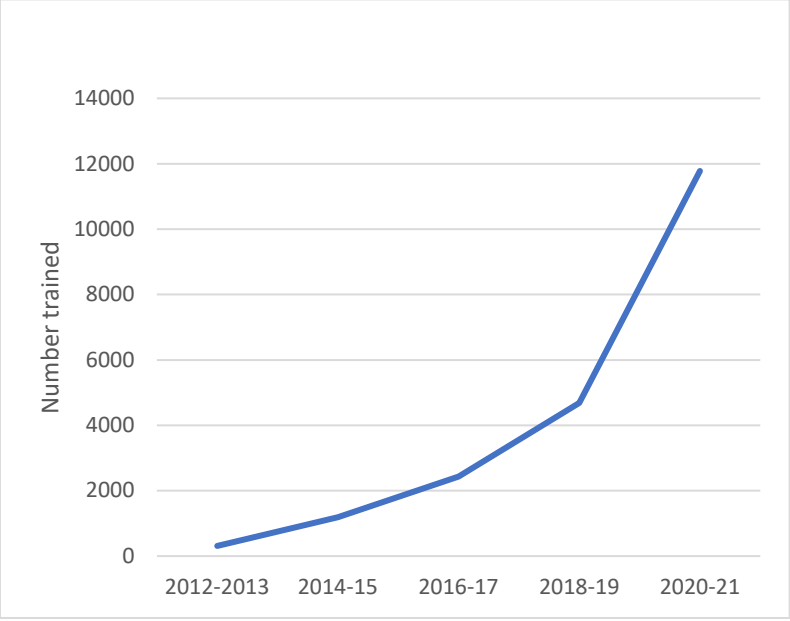
65. Second, respondents expressed the view that TDR should be supporting research capacity building among operational and programmatic teams rather than among academics. However, academics may play an important role in some such teams and taking a team-based approach might mean that a blanket ban on training for one group of people in all settings might not be appropriate. Similarly, although PhDs might be considered by some to be largely the realm of academics, others point out that many people with PhDs work in Ministries of Health and health programmes where they may be extremely influential in promoting the importance of implementation research within particular programmes.

66. Third, Table 3 presents details of how many people have benefited from different TDR training programmes in recent years. There has been a large increase in the number of people TDR has trained from just over 300 in 2012-13 to more than 11,000 in 2020-21 (see Figure 6). Initially, the main rise was due to training conducted by RTCs but the large increase since 2016-17 specifically relates to training provided through MOOC (see Figure 7).[8] In addition, there are other substantial changes which may be overlooked given the scale of those trained through the MOOC. The number of people receiving funding for Masters rose from 22 in 2014-15 to 165 in 2020-21. Another area of growth has been in training provided by IMP, that is not by RCS. For example, in 2020-21, 439 people received such training which includes training provided through SORT IT and other courses. In addition to no longer supporting PhDs, TDR is no longer supporting impact or postdoctoral grants.

Table 3: Numbers of people trained through different TDR programmes and training courses

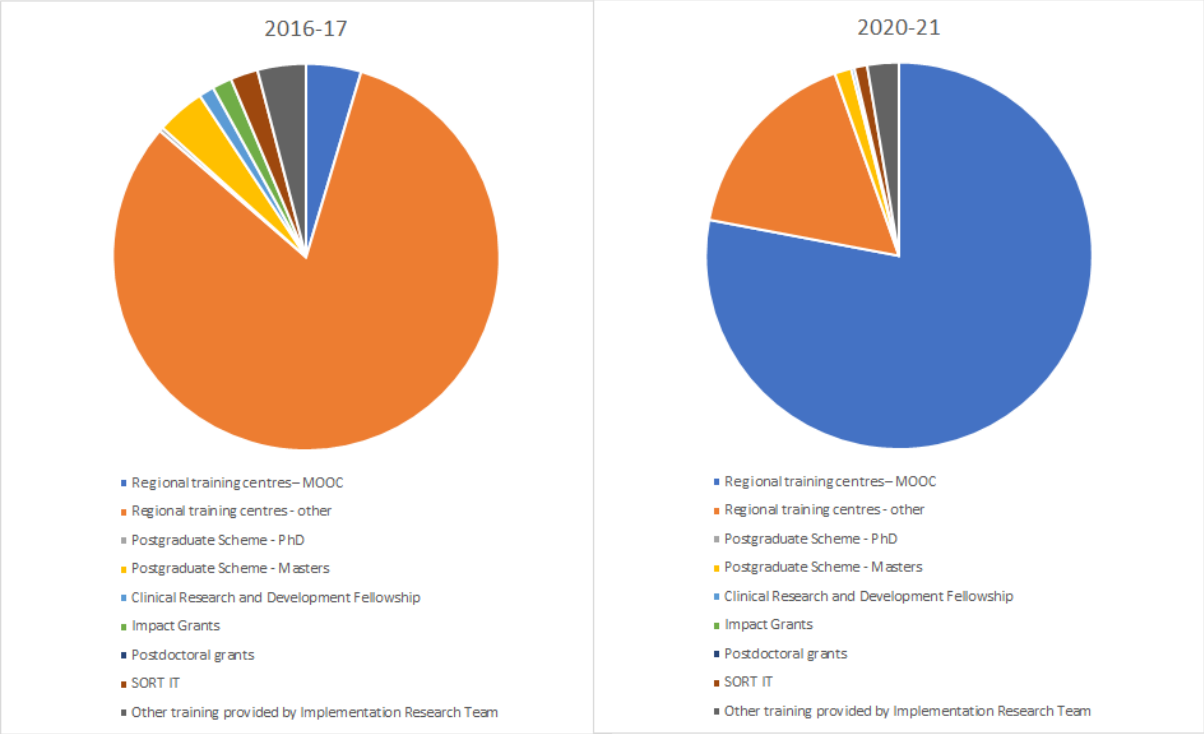
	2012-2013	2014-15	2016-17	2018-19	2020-21
Regional training centres – MOOC			112	2265	9185
Regional training centres - other	259	894	1992	1907	1958
Postgraduate Scheme - PhD		9	8		
Postgraduate Scheme - Masters		22	99	116	165
Clinical Research and Development Fellowship	16	18	31	18	32
Impact Grants		69	40		
Postdoctoral grants	25	68			
SORT IT	11	52	56	158	127
Other training provided by Implementation Research Team		59	99	224	312
Total	**311**	**1191**	**2437**	**4688**	**11779**

Figure 6: Number of people trained by TDR: 2012-2021



[8] There is an issue concerning how attendance on MOOCs is counted. TDR seems to be using the number who register but many of these may not complete the course. Where TDR does provide completion figures, they are of the order of one quarter of those who register. Clearly, a decision on which figure to use will affect, not only attendance figures, but also any calculation of unit costs.

Figure 7: Proportion of people trained by TDR using different methods: 2016-17 compared to 2020-21



67. Table 4 presents the average cost per person of different TDR training methods over different time periods. From 2012/13 to 2020/21, the cost per person of training provided by RTCs fell from $4,510 to $153 and this largely reflects the shift to virtual training courses, particularly MOOC. The cost per person of postgraduate training has also fallen sharply from $142,890 in 2014-15 to $23,945 in 2020-21. This reflects a shift away from training in northern institutions to training in centres in the global South. However, not all those institutions have similar charges (see Table 5) and this led to a recent decision to no longer support Masters students at the American University in Beirut. While the figures provided by TDR do not distinguish costs of PhDs and Masters, TDR estimates the cost of a PhD at $60-80,000. This cost has not changed much over time but could if more students were able to do their PhDs in their home countries. The unit costs of the CRDF have changed little over time and the same is largely true of SORT IT training although there has been some diminution in 2018-19 and particularly 2019-20. Unit costs of training provided by IMP vary quite widely. Short courses work out at between $259 and $682 per person. For training programmes lasting a year or more, the cost varies from around $2,500 to $6,400. For the Population Health Vulnerabilities training which runs over four years, the cost per person is around $25,424.

68. Comparing these in terms of unit costs only, it costs about fifty times as much to train one person through SORT IT as through RTCs. The ratio for postgraduate training is over 150:1 and for CRDF over 550:1.

Table 4: Cost per person of different types of TDR training over different time periods

	2012-2013	2014-15	2016-17	2018-19	2020-21
Regional training centres	4510	2828	661	336	153
Postgraduate Training Scheme		142890	33539	48110	23945
Clinical Research and Development Fellowship		116667	84677	125041	84375
Impact Grants		32719	71474		
SORT IT	16364	16154	19286	10633	7717

Table 5: Cost per Masters in US$ at different institutions

	International students	National Students
BRAC, Bangladesh	12,050	11,450
Colombia	36,935	33,683
Gadjah Mada University, Indonesia	27,300	18,000
Ghana	24,500	14,500
American University Beirut, Lebanon	80,174	83,747
Wits, South Africa	33,685	28,988

69. The final issue is whether support could be obtained from elsewhere. Respondents were concerned that while there were many organizations providing short courses, there were relatively few who provided support for postgraduate training. However, it is not clear what concrete evidence there is of this. For example, institutions continue to run their postgraduate programmes so presumably someone is paying for these courses. It would be good to verify if these are largely people from high-income countries as perhaps might be expected. It would also be good to understand better if people who benefit from one form of training from TDR are then able to access support for further training elsewhere. The recent mapping study conducted by TDR (see paragraph 45) identified some distinctive features of TDR's capacity building support including being focused on low- and middle-income countries, focusing on a team rather than individuals, focusing on implementers rather than academics and training by doing. TDR might use these elements as criteria to assess the types of training they should and should not be offering.

70. TDR has two global engagement KPIs. The first relates to the number of research-related agendas, recommendations and practices agreed by stakeholders at global, regional or country level and facilitated by TDR. The six-year target for this was six and this was achieved at the end of the third year. Quite a diverse range of items was reported under this indicator including the strategic framework for collaboration between the Global Fund and WHO, work done with 44 African countries to identify research barriers to the implementation of new treatment guidelines for multidrug-resistant TB and defining TB research priorities, and support to the Southern Africa Research and Innovation Management Association (SARIMA) to develop a framework for research management. In addition, use by others of the TDR Portfolio-to-Impact tool to analyse disease pipeline is reported three times against this indicator. This indicator also includes joint work done by TDR with others to undertake an analysis of funding from basic research and product development to research for implementation with a focus on malaria R&D.

71. The second indicator is qualitative and relates to evidence of stakeholder engagement in TDR joint initiatives aligned with TDR strategic initiatives. In 2018, TDR reported its work with the Infectious Diseases Data Observatory and others around research data sharing. This led to establishment of new data sharing platforms. In 2019, TDR provided a further update on this work including relevant meetings. TDR also reported on collaborations with the International Atomic Energy Agency, UNDP, the SIHI network and its collaborations, AMRO/PAHO, AHPSR and HRP. In 2020, however, the results report noted that this would be reported at the end of the biennium but no explanation for this was given, particularly as this diverged from practice in the previous biennium. Given the nature of this indicator, it would have been reasonable to give a further update on the collaborations reported previously and any new ones developing or being developed.

72. One of the specific questions for the review is the extent to which TDR has been effective in addressing the technical and policy recommendations of its scientific working groups, STAC, the Standing Committee and the JCB.[9] Annual reports for IMP and RCS, since 2019, have contained details of recommendations made by the relevant scientific working groups and, since 2020, actions taken to address them. The scientific working group on Research for Implementation makes numerous recommendations across a range of topics including high-level and specific project recommendations. The specific recommendations cover particular diseases and pathogens, particular projects, a range of other topics and the functioning of the scientific working group. Similarly, the working group on Research Capacity Strengthening makes numerous recommendations also across a range of topics including overarching and more specific recommendations. The specific recommendations cover particular projects, regional training centres, the MOOC, CRDF, PGTS, particular training courses, particular products, priority areas, budget allocation and the challenges of fundraising. It is not clear the extent to which the two working groups and units share their recommendations with each other, particularly where the working groups are both making recommendations on the same projects, e.g. SORT IT or where a working group is making recommendations on issues which are broader than one unit within TDR, e.g. on gender or climate change.

73. TDR's work on global engagement does not have a specific working group working with it but rather it is expected that the other two working groups will work together jointly on matters related to global engagement. However, the extent to which this is happening is unclear. On 22 October 2021, a joint meeting of the IMP and RCS scientific working groups considered matters related to global engagement. This had the appearance of an introductory meeting at which the TDR Secretariat presented an overview of the global engagement activities but it appears that there had been previous meetings. It does not appear that joint notes and/or recommendations are made from these meetings. Rather, each working group may or may not record information related to global engagement in their main report. More details were recorded by the IMP SWG than by the one on RCS, including one recommendation which was that future joint sessions be held before and not after the meetings of the SWG. It is not clear that this joint session is yet specifically reviewing work, projects and topics relating to TDR's global engagement as they do for IMP and RCS. The global engagement annual report does not catalogue and respond to working group recommendations in the same way that the two units do.

74. In terms of meetings of the STAC, the two SWGs do make presentations and these presentations include mention of the groups' recommendations but, in most cases, these are not itemised. It is not clear if the working groups particularly bring to the STAC issues and recommendations of relevance to TDR as a whole or if the STAC takes a particular interest in areas of potential overlap between the two working groups, for example where both working groups are making recommendations, e.g. on SORT IT. Each STAC meeting includes a list of recommendations and, at the start of the following meeting, there is an item entitled Director's Report and follow-up on STAC recommendations. There is a table which systematically reports progress on each recommendation but this is not explicitly referred to in, or annexed to, the meeting report. Someone just reading the STAC report would not be aware of this document. Between 2017 and 2022, the STAC made a total of 37 recommendations. These covered a range of areas including particular programmes and projects, TDR's funding, risks, COVID-19, strategy development, gender, collaboration with WHO and others, promoting collaboration between TDR units, monitoring, evaluation, learning, the need to review activities by geographical region, reporting, publication and promotion of materials, human resource management and the composition and functioning of the STAC and SWGs. In common with other parts of TDR's governance structure, there is no mechanism for the STAC to indicate if they are satisfied with the Secretariat's response to particular recommendations. On some occasions, the STAC found it necessary to re-state a particular recommendation implying perhaps that it did not believe

[9] One issue is the status of these recommendations and whether it varies by different bodies. Usually, the term "*recommendation*" implies that someone can decide whether they do or do not follow it. This may be appropriate in some cases, perhaps with the SWGs, but where something is a more formal governance structure, this could potentially create a misleading impression and the term "*decision*" might be preferable.

its recommendation had been fully taken on board. For example, the STAC, in 2019, recommended more use of conceptual diagrams in team annual reports. The TDR Secretariat responded by saying that the 2018 reports included more conceptual diagrams. But, in 2020, the STAC reiterated this recommendation with the TDR Secretariat stating that the 2019 reports contained even more visuals. Other recommendations made more than once include seeking to strengthen collaborations between RTCs and universities and the need for a mini-evaluation of the STAC.

75. Summaries of standing committee meetings include items which consider recommendations from JCB and STAC but these do not include details of specific recommendations and how TDR has responded to these. Many of the summaries do contain general statements that all expected "*follow ups*" from the previous session were addressed. The Standing Committee summaries do not include an itemized list of recommendations, as the STAC notes do, but there are some recommendations embedded within the summaries. As with the STAC, there is a table which systematically reports progress on each recommendation but this is not explicitly referred to in, or annexed to, the meeting notes. Someone just reading the Standing Committee meeting notes would not be aware of this document. Between 2017 and 2021, the Standing Committee made a total of 53 recommendations covering a wide range of areas including specific diseases and disease groups, specific projects, engagement with global and regional initiatives, interaction with WHO, other co-sponsors and the Global Action Plan for Healthy Lives and Well-being for All (SDG3 GAP), membership of the coalition for implementation research, engagement with country governments, strategy development, responding to emergencies, risk management, fundraising, working capital, innovation, audit, monitoring, external review, learning, communications, development of case studies, organigram development and composition and functioning of the JCB. While some of the Standing Committee recommendations are similar from one meeting to another, these are largely because they relate to ongoing issues, such as WHO's mobility policy or fundraising.

76. JCB meetings usually include a report from the Standing Committee, in which decisions and recommendations of that Committee are sometimes summarized, and a report from the STAC. While the latter does not systematically present recommendations, some are sometimes noted, e.g. in JCB42. Each JCB does include a list of its recommendations. As with the STAC and the Standing Committee, there is a table which systematically reports progress on each recommendation but again this is not explicitly referred to in, or annexed to, the meeting report. Someone just reading the JCB report would not be aware of this document. From 2017-2022, the JCB made a total of 37 recommendations across a wide range of topics including issues relating to specific diseases or disease groups, specific projects or programmes, COVID-19, engagement with regions and countries, interaction with WHO, links to SDG3 GAP, strategy development, resource mobilization, allocation of SDF, risk management, human resource management, external reviews, monitoring, reporting, composition and functioning of committees, such as the STAC and the JCB. There are some cases where recommendations were repeated from one year to the next implying the JCB was not completely satisfied with the Secretariat's response. For example, in 2019, the JCB asked for new ways to be identified to ensure the visibility of TDR's core contributors. The TDR Secretariat responded to this by saying that branding guidelines had been developed but, in 2020, the JCB asked for further improvements in this area. There is one recommendation from 2019 where the JCB asked TDR to include a split in personnel costs (technical [operations] and operations support) in expenditure reports and the TDR Secretariat responded by saying they do that. However, while this figure is included for budgeting it is not included in expenditure reporting although the figures are available. This issue is explored further in this report (see p35).

77. Overall, TDR has a thorough and systematic way of recording and responding to recommendations of its governance bodies although this process is not clearly documented in or linked to formal reports. There is currently no place where the TDR Secretariat indicates whether or not it accepts recommendations. This may be appropriate given the governance nature of these bodies. However, if this is the case, these "*recommendations*" might more appropriately be called "*decisions*". While

there is perhaps implied agreement from the governance bodies that the Secretariat has addressed the issues raised, this is not explicitly documented anywhere, for example in the reports. Nevertheless, it does seem that the TDR Secretariat is responding to recommendations from the governance bodies and that those bodies are satisfied that TDR is doing so. But, there are some instances where this may not be the case as indicated by the committee issuing a very similar recommendation in the next meeting. While some of these legitimately relate to ongoing issues beyond TDR's control, there are some examples where perhaps further actions could have been taken. It would be helpful if the governing body commented on and approved the actions taken by the TDR Secretariat, including identifying where they think further action is needed, and these comments, approvals and suggestions were recorded in the report. The TDR Secretariat needs to be careful to ensure that accurate information is given to its governing bodies as this does not appear to have been the case in relation to the 2019 JCB request to have salaries separated out by operations and operations support in financial reporting of expenditure.

78. Respondents considered TDR highly effective overall and some noted how much TDR achieves with relatively few resources. However, a point especially made by staff, is that this places particular burden on some staff and this may be made worse by a mis-match between the competencies of some TDR staff and those needed by TDR's current ways of working. Nevertheless, overall TDR is considered to have strong capacity and one respondent commended the throughput as "*magnificent*".

79. Areas and activities highlighted by respondents as particularly effective include capacity building activities and support to implementation research, in particular. The provision of small grants is particularly valued. Projects highlighted as particularly effective included SORT IT and ESSENCE.

80. Particular characteristics of TDR's way of working were identified as contributing to effectiveness. These included the focus on low- and middle-income countries in general and identifying disease-endemic countries as a group as a way of giving them a voice within the JCB. However, some respondents identified the need for more representation from some regions within this grouping, for example, Asia and Latin America. In addition, TDR's work on gender was seen as contributing to effectiveness, particularly promoting the role of women in science. The way that TDR adapted to COVID-19 was also seen as highly effective as it maintained a focus on the programme's core work, including allowing some field work to continue, while utilizing TDR-related resources to support responses to COVID-19. It was considered that TDR's use of lessons learned from responses to Ebola enabled them to work as effectively as they did.

81. Respondents identified a number of factors which they considered contributed to TDR's effectiveness. These included that:

    - TDR is *well-managed and well-led*. It is smaller and less bureaucratic than other organizations, such as WHO.
    - TDR has *good links with WHO* and these have been strengthened by the establishment of a Science Division within WHO, not least because of the joint role currently being played by TDR's Director. TDR uses the same systems as WHO and has close relationships with some WHO regional offices, with some programmes, such as the Global TB Programme, and with HRP, the other special research programme executed by WHO. Nevertheless, there are some respondents who see the separation between TDR and WHO as problematic yet there are others who basically see no difference between TDR and WHO or who see TDR as a "*mini WHO*". Some universities, who partner closely with TDR say that they find it easier to work with TDR than with WHO as they see WHO as mainly focused on working with Ministries of Health.

- There have been *good communications* with TDR's main donors and co-sponsors and those donors are able to see what they get in return for their support in a way that is seen as transparent.
- TDR has an extremely *extensive network* of individuals and organizations in health in low- and middle-income countries.
- TDR's *long history* means that it is well-known among many relevant stakeholders and has a strong reputation built up over many years.
- TDR's *governance structure* and related committees are seen as effective and adding value. This applies particularly to the SWGs but similar comments were also made about all the elements of TDR's governance structure.

82. In addition, respondents identified some limitations or challenges to TDR's effectiveness and these are briefly noted here. While TDR was praised for effective communications with its key donors, other stakeholders interviewed for this review explained that they *lacked effective communication* from TDR and did not really understand how TDR was measuring and reporting effectiveness. As a result, many declined to comment in this area. Several noted that they were not as familiar with TDR's work as they would like to be.

83. Another issue is that many of TDR's most notable successes, for example, on insecticide-treated nets for malaria are *based on approaches no longer being followed* by TDR. There is still need to explain why TDR's approach has adapted and changed, particularly beyond the group of TDR's most immediate stakeholders, and what the implications of that are for what success looks like and how that might be measured.

84. At least one respondent commented that *how TDR measures success may not have yet caught up with its change in model and way of working*. For example, if TDR's focus is on building national research capacity, should there be a focus on the number of research institutions in low- and middle-income countries, the extent to which those countries fund health research from their own budgets and the existence and level of functioning of national research and ethics committees?

85. One of the biggest challenges TDR faces is *the way it receives its funding* which is often short-term, unpredictable, uncertain and may be earmarked (designated) for particular projects or purposes. This makes planning and implementation difficult as TDR does not know for sure what levels and types of funding will be available to it at the start of each biennium. TDR has developed an effective way of dealing with this by developing two budget scenarios which are updated throughout the biennium as more finances and more financial information become available. However, the way funding is received does lead to substantial challenges for TDR in seeking to deliver effectively.

86. Some stakeholders identified TDR's *interactions with other organizations* as a potential challenge or limitation to its effectiveness. This might include duplications with some organizations, including WHO, but it was thought that the creation of a Science Division could help address that although it was considered probably too early in the process to judge definitively. Although TDR's interaction with WHO's Global TB Programme is good, and contributes to effectiveness, the frequency of interaction with the NTD Department has reduced and is quite limited with the Global Malaria Programme. Interaction with WHO regional offices is mixed with several regional focal points reporting that they do not always know what TDR is doing in their regions. TDR largely does not interact directly with WHO country offices, rather interacting through regional offices or partners. The main constraint here is that TDR lacks regional or in-country presence. While TDR has a close working relationship with HRP, the interaction with AHPSR is more limited. If TDR, and the other research entities, continue to move more towards a focus on research capacity strengthening and supporting implementation research, designed, led and implemented by local teams, the rationale for having three separate entities doing similar work becomes less compelling and the case for closer cooperation more compelling. Some stakeholders consider that partnerships with particular major

players could be stronger and more prioritized, for example with the Global Fund and Unitaid. Engagement by and with co-sponsors is mixed. UNDP has well-established joint work with TDR and UNICEF is developing such work. All co-sponsors are now active in TDR's governance structure but currently it is unclear what other engagement the World Bank has beyond that.

87. There were some concerns about the *geographical distribution* of TDR's work with some respondents considering that TDR had more focus on some regions, e.g. Africa than others. There are also some concerns about focus on countries which are primarily English-speaking with perhaps less focus on those that are Spanish-, French- or Portuguese-speaking. However, TDR is taking steps to address this issue through partnership with a university in Senegal and by making sure the MOOC is available in both French and Spanish.

88. There are concerns among some respondents that TDR's *staffing profile* might reflect previous priorities and needs and there might be a lack of some skills, such as economics and data management and that management skills might still be concentrated at the highest levels of the programme. Given TDR's focus on research capacity building and supporting local teams to conduct implementation research, there are concerns that TDR lacks any staff in regions or countries.

89. Respondents did raise concerns about TDR's *global engagement* work. In part, this may reflect the relative newness of this area of work but it may also reflect difficulties in defining precisely what the strategic priorities are and how success would be measured. Respondents considered that the SWGs related to research and research capacity strengthening have added value and have contributed to TDR's effectiveness in those areas. There are therefore concerns that there is no similar mechanism for global engagement. While it is expected that the two existing working groups would jointly support this area, this is not yet happening to the same extent as with IMP and RCS but it may be too early to say definitively whether the approach can or cannot work.

90. There are concerns that *disease-specific modalities* could hamper effectiveness particularly when the intention is to build capacity to conduct implementation research on locally-prioritized issues. Focusing on particular diseases may have made sense when no-one else was doing so but that rationale has now largely gone. There are specific concerns about inconsistencies on this issue, for example when TDR tells a partner that they do not support work on HIV but then SIHI does so. There is some evidence that TDR is supporting research in broader areas than the diseases it traditionally supported and there has been a specific focus in some new areas, such as AMR. But, the majority of research supported by TDR still remains on TB, malaria and NTDs. However, experience with COVID-19 has shown that when someone has been trained by TDR, their skills and experience can be harnessed for areas beyond the diseases on which TDR has tended to focus, including for responses to outbreaks and pandemics, such as COVID-19.

91. Some respondents are concerned that *COVID-19* has had a negative effect on TDR's effectiveness. While TDR has tried to adapt and adjust to working during the COVID-19 pandemic and has done well in terms of shifting much of its work online, there are concerns about the effect of this in terms of loss of ability to renew and strengthen relationships through face-to-face meetings and potential equity issues for those who have less access to online activities.

Efficiency

92. Broadly, respondents consider that TDR has high levels of administrative efficiency. This echoes the findings of the sixth review [1] which noted that "*the TDR Secretariat is widely seen, particularly in WHO, as efficient and well-managed*". Several respondents identified that the Director provides exemplary leadership in this area responding to enquiries extremely promptly. Overall, TDR is seen as professional and thorough in its grant administration with some grant recipients commenting positively on TDR's patient and supportive approach. However, some staff respondents are concerned that while things may seem very efficient from the outside, there is a great deal of work and activity within the organization to make this possible. While several respondents did comment positively on the amount TDR achieves with a limited number of staff, staff themselves point out that this comes at a cost with staff facing high workloads and levels of pressure. There is also concern that workload is not shared equally among TDR staff.

93. In 2019, the report of the external auditor of WHO [23] included a focus on TDR. The auditors commented that several of TDR's critical management processes needed intensified supervision, comprehensive results monitoring and enforcement of policy, regulations, procedures and reporting. They also noted that because TDR is supported by programme funding from long-term contributors and has its own partnership criteria, clarity may be needed on TDR's part in the WHO's redesigned resource mobilization process. In addition, they noted that, in the case of TDR, there were delayed and incomplete Performance Management and Development Systems (ePMDS) reviews and inadequate alignment of stated objectives in the ePMDS with specific, measurable, attainable, relevant and time-bound (SMART) objective criteria. They also noted that, in TDR, there is a need to reflect better root-cause analysis of the identified risks aligned with the WHO risk management policy and guidelines, and ensure that there is clear descriptive information provided for the development of an appropriate risk response.

94. In addition, TDR report that they received a list of findings from that audit. There were seven items on the list on the themes of programme management, timely delivery of donor reports, timely PMDSs, SMART objectives, selection of consultants, risk identification and resource mobilization. WHO and TDR have responded to each of these items and recommended that they each be closed.

95. Some respondents commented that TDR had high levels of administrative staff and that some of these were not needed or fully utilized. Based on information provided by TDR, the ratio of professional (P) to administrative (G) staff is 1.9:1 (19:10). One staff member commented that this was much lower than for other parts of WHO. However, based on WHO data[24], that is not the case. Overall, the ratio of P staff to G staff across WHO as a whole is 1.3:1 if National Professional Officers are included as P staff and 0.9:1 if they are not. The ratio of P staff to G staff in TDR is higher than this and higher than in any of the five regions for which data is provided. It is on a par with the figure for headquarters as a whole which is 2.1:1. There is perhaps an issue that some P staff may not always understand what the G staff are doing and, potentially as a result, may not fully value their contribution. It is important to recognize that TDR has built a reputation among key stakeholders of being well-run and well-administered and this is due, in no small part, to the role of the G staff.

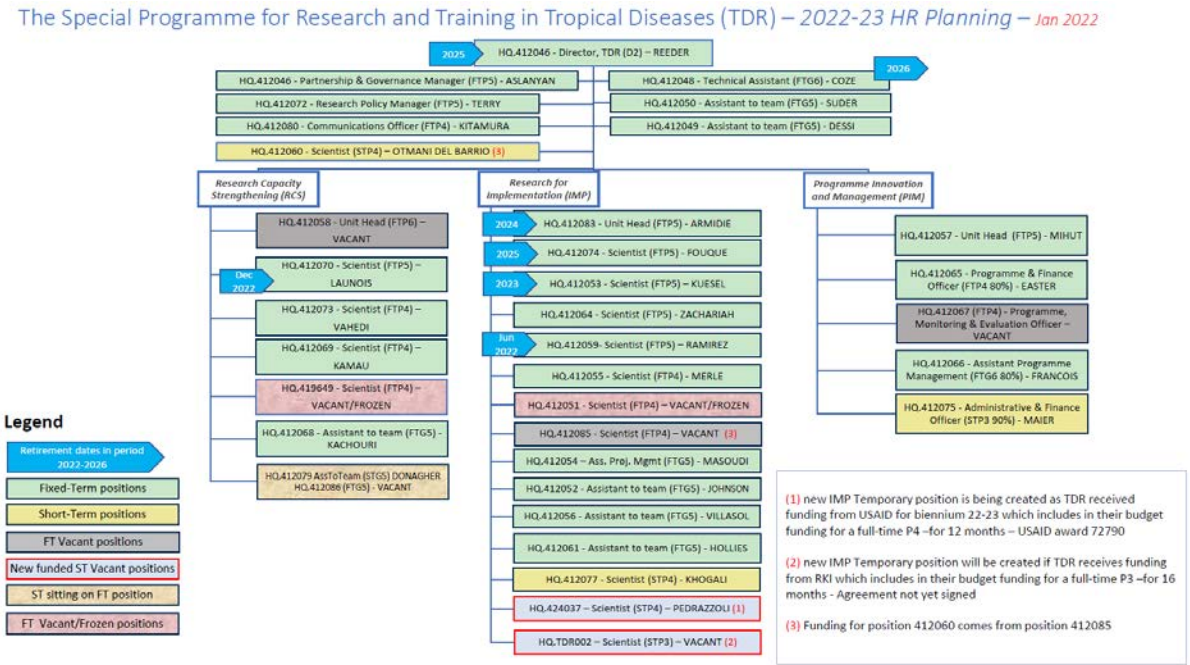
96. Some concerns were also raised as to why TDR needs a separate PIM unit in addition to administrative capacity within the teams. Concerns were also raised over why the position of the head of that unit was rapidly filled while other posts have been unfilled or have been frozen. Some caution is also needed here. TDR's fifth review in 2011 [25] praised what was then called Portfolio and Programme Management (PPM) for its role in improving decision-making, communication, planning, budgeting and particularly reporting on the financial situation. It is understood that the establishment of the PPM unit was a key step in resolving the crisis that TDR was facing, in professionalizing and stabilizing many management processes within TDR and in regaining the confidence of key stakeholders. There is, however, a slightly separate issue about why some projects are managed directly by PIM. The

argument for this is related to its role in innovation but it appears that sometimes PIM took on particular projects, e.g. SIHI and TDR Global, because other units could not or would not do so. There could be more clarity over which projects merit this incubatory management and for how long. Currently, there is some tension between PIM's role in overall portfolio management while being de facto another implementation unit within TDR.

97. One point highlighted by the HRP evaluation in 2019 [6] related to the relative budgets for research capacity strengthening held by TDR and HRP and the rate of budget utilization, which is sometimes considered as a proxy for efficiency. In 2016-17, 11% of HRP's operations budget was allocated to research capacity strengthening, and executed to 74%. In the same period, TDR allocated 49% of its budget to research capacity strengthening and executed it to 90%.

98. In general, there is alignment between the three strategic priority areas identified in the current strategy [2] and TDR's structure and portfolio. The three strategic priorities are research for implementation, research capacity strengthening and global engagement. In the case of the first two of these, they form the two main units within TDR's structure (see Figure 8). However, there is no explicit structure for the third strategic area, global engagement. This is deliberate as it is expected that this area would not be delivered by a particular team or unit within TDR but rather would be delivered through contributions by other teams and units. While this has merits conceptually, in practice there is the risk of the Director's office and PIM being seen as further delivery/implementation units alongside IMP and RCS in addition to their roles of overall portfolio management.

Figure 8: TDR Organigram



99. In terms of how the units and teams operate, there are some areas that conceptually might be considered research capacity strengthening, e.g. SORT IT and other training activities, that are delivered by IMP. While this may be in part to separate direct and more indirect forms of research capacity strengthening, another factor was to allow balance in terms of the relative financial size of the two units. The approach chosen appears to have led to some areas of overlap and duplication with, for example, both SWGs producing recommendations related to SORT IT. In addition, there may be duplication in other areas with, for example both IMP and those working on global engagement doing work on gender.

100. Respondents raised concerns about the limited number of staff within TDR particularly in relation to the amount of work expected. They considered that part of this related to a cap or restriction on the number of staff TDR can employ at WHO headquarters. Table 6 briefly considers how staff positions are distributed within TDR. It is worth noting that almost half the professional staff (11/24, 46%) are located in IMP. This is double the number in RCS and is three times as many if vacant and frozen posts are excluded. RCS is particularly affected by frozen or vacant posts with two of their five professional posts either frozen or vacant and that includes the post of unit head. Another position that is vacant currently is the Programme, Monitoring and Evaluation Officer within PIM. This is of concern given that the need for this post was implied in TDR's sixth review [1], which identified the need for greater capacity for monitoring and evaluation, and this review has identified some weaknesses/errors relating to monitoring and evaluation, for example, indicator seven in the performance framework has an annual target but TDR reports cumulative figures (see Annex 4). It is understood that this position is in the process of being filled.

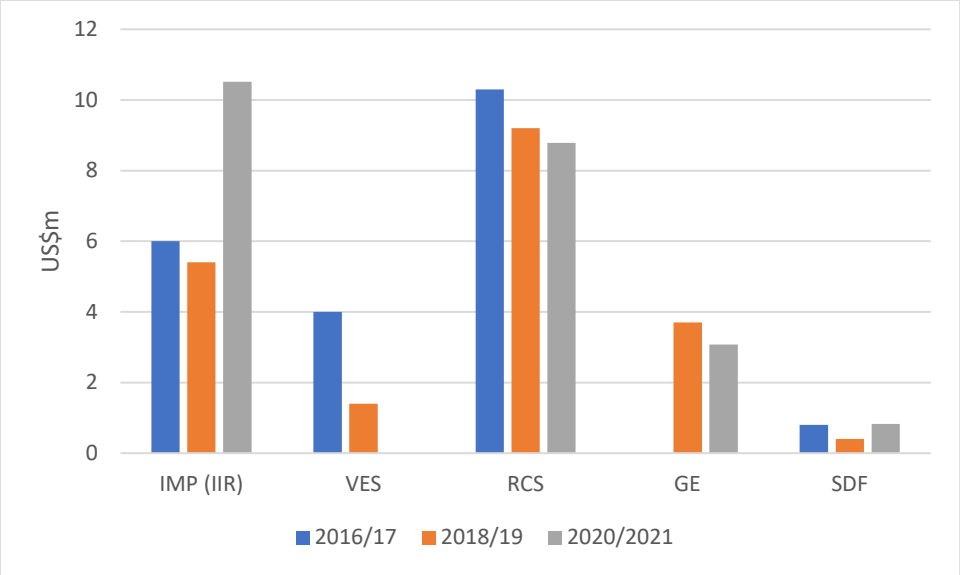
Table 6: How are staff positions distributed within TDR?

	Director's Office	RCS	IMP	PIM
P staff (number/%)	4 (17%)	5 (21%)	11 (46%)	4 (17%)
G staff (number %)	3 (30%)	2 (20%)	4 (40%)	1 (10%)
Vacant/frozen posts (number/% of P staff in that unit)	0 (0%)	2 (40%)	2 (18%)	1 (33%)

101. In general, respondents consider that TDR's governance structure adds value and contributes to its effectiveness. However, there are several layers (STAC, Standing Committee and JCB) and there are mixed views on the appropriateness of this for a programme of the nature of TDR. Some respondents consider that the governance structure is an integral part of TDR's success with each part contributing in different ways. Others consider that the governance structure is too heavy and expensive particularly when meetings are held face-to-face. These mixed views are particularly seen in relation to the JCB. It is recognized that as a large body that meets infrequently its members can only have a limited role in TDR decision-making and the Standing Committee is perhaps more important in that regard. Nevertheless, some respondents consider that the JCB plays an invaluable role in giving countries a voice in how TDR is run and a means to influence decisions and direction. Others argue that any value added is not sufficient to justify the cost especially for annual in-person meetings. Perhaps a particularly pertinent question is whether the value of TDR's governance bodies has been greatly diminished over the last two years by being forced to meet virtually. If not, perhaps those governance bodies could continue to meet virtually. If diminution has occurred but is relatively minor, then perhaps a mixed or hybrid approach could be taken with some meetings being held in person but others being held virtually. The sixth review [1] raised very similar issues stating that "*meetings supporting the current governance system remain high in transaction and monetary costs. This is only sustainable as long as self-funding representatives feel it is worth contributing. Given the financial pressures that exist globally, efforts should continue to be made to reduce costs and to undertake functions in more streamlined ways, using virtual meetings wherever possible*." While the COVID-19 pandemic may have forced developments in this area, it will be important to try to maximize any efficiencies and savings that are possible, for example by continuing to work virtually wherever possible.

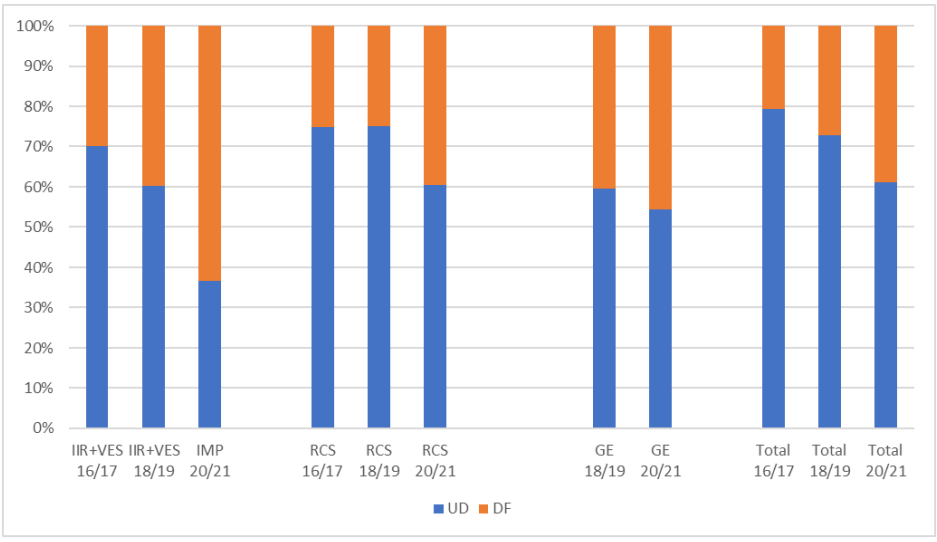
102. Figure 9 shows funds utilized by the different units of TDR over time. This shows a sharp increase in the amount of funds utilized by IMP in 2020-21 ($10.5m) as compared to the amount utilized by IIR and VES combined in 2018-19 ($6.8m). The amount utilized by RCS has fallen steadily from $10.3m in 2016-17 to $8.8m. However, caution is needed in interpreting these figures as it does not necessarily mean that the amount TDR is spending on research capacity strengthening activities is falling given that the way TDR is structured means that both units currently conduct such activities.

Figure 9: Funds utilised by different units of TDR: 2016-2021



103. Another difference is the extent to which the funding available to different units is from designated or undesignated funding (see Figure 10). Over this period, total designated funding rose from $8.2m (21% of total) in 2016-17 to $16m (39% of total) in 2020-21. Conversely, undesignated funding fell from $31.4m (79.3% of total) in 2016-17 to $25m (61.1%) in 2020-21. Similar trends are seen in all units but this trend is most marked in IMP. In 2016-17, around two-thirds (65%) of funding to IIR and VES combined was undesignated whereas, in 2020-21, that ratio was reversed with almost two-thirds of funding (64%) from designated funds.

Figure 10: The percentage of funding to different units of TDR and TDR as a whole that is from designated and undesignated funding: 2016-2021



104. Combining funding and staffing data, it is possible to calculate the amount of operational funds spent per professional member of staff for IMP and RCS. For RCS, each professional staff member disbursed an average of $1.76m of operational funds if vacant and frozen posts are included and $2.93m if they are excluded. For IMP, each professional staff member disbursed $0.95m if vacant and frozen posts are included and $1.16m if they are excluded. However, alone, these figures are not a definitive measure of efficiency. There may be valid reasons why one unit needs more staff to disburse the same

amount of money as another, for example, if that unit has multiple small projects to manage. This does seem to so in this case with IMP managing multiple smaller projects and RCS managing a smaller number of larger projects. Nevertheless, it does perhaps provide some evidence that the allocation of professional staff to the units does not currently match well the relative spending of those units. It also does imply potentially that it would be more efficient if TDR could manage a smaller number of larger projects. There could potentially be a size of project below which TDR, as a global secretariat, does not consider it efficient to manage and perhaps such projects might be better handled by one or more of TDR's regional or national partners.

105. Another issue in the consideration of efficiency is the level of spend on administration/operations support and how that is changing over time. TDR does have a designated funding grant policy and procedures document. [26] A revised version of this was agreed in May 2021. This document specifies that all proposals to donors must be fully costed and these costs should include the cost of activities, reviews, actual technical and programme support, staff time and programme support costs (PSC) of 13%, a level set by WHO.

106. The main way TDR distinguishes its spending is into operations, operations support and personnel. However, personnel includes both operations and operations support staff. TDR does distinguish these in some of its budgeting (see Figure 11). [27] This shows that the expected costs of operations support, including salaries, in 2022-23 would be between 17-21% depending on where actual expenditure falls within the two budget scenarios. However, while TDR does take this approach in its budgeting, it does not routinely calculate or report these figures for expenditure even though there was a recommendation from the JCB in 2019 that expenditure reports divide personnel costs into operations and operations support (see p27).

107. Figures provided by TDR indicate that just under three-quarters (72-73%) of staff costs are operational with the remainder being operational support. Given that TDR staffing is relatively stable, the review team have applied a split of 72:28 to apportion staff costs to operational and operational support based on actual expenditure reported for the last three biennia. These figures are shown in Table 7. Based on these calculations, the cost of operations support is between 18-20% of total expenditure. These figures are within the range budgeted for in 2022-23 and illustrated in Figure 11.

Figure 11: 2022-2023 Budget scenarios showing split between cost of operations and operations support

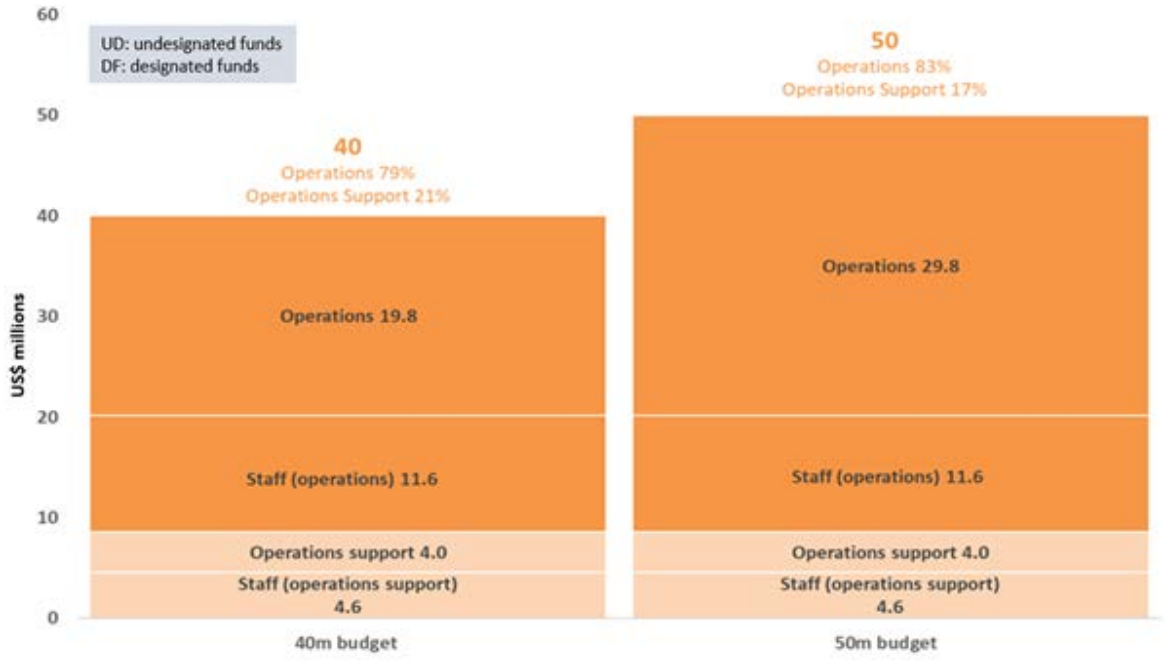


Table 7: What proportion of TDR's expenditure is administrative/operational support? Calculations for 2016-2021[10] (all figures $m)

	2016/17			2018/19			2020/21		
	DF	UD	Total	DF	UD	Total	DF	UD	Total
Operations	5.6	15.5	21.1	6.5	13.6	20.1	11.6	11.6	23.2
Operations support	1.0	2.4	3.4	0.9	1.9	2.8	1.0	2.7	3.7
Staff	1.6	13.5	15.1	2.8	11.7	14.5	3.4	10.7	14.1
Total	**8.2**	**31.4**	**39.6**	**10.2**	**27.2**	**37.4**	**16.0**	**25.0**	**41.0**
Cost of operations									
Operations	5.6	15.5	21.1	6.5	13.6	20.1	11.6	11.6	23.2
Operations staff	1.3	9.6	10.9	2.0	8.4	10.4	2.7	7.5	10.2
Total	**6.9**	**25.1**	**32.0**	**8.5**	**22.0**	**30.5**	**14.3**	**19.1**	**33.4**
Cost of operations support									
Operations support	1.0	2.4	3.4	0.9	1.9	2.8	1.0	2.7	3.7
Operations staff	0.3	3.9	4.2	0.6	3.5	4.1	0.7	3.2	3.9
Total	**1.3**	**6.3**	**7.6**	**1.5**	**5.4**	**6.9**	**1.7**	**5.9**	**7.6**
Cost of operations support as percentage of total	**15.9%**	**20.1%**	**19.2%**	**14.7%**	**19.8%**	**18.3%**	**10.6%**	**23.6%**	**18.5%**

108. Table 7 also shows similar calculations for undesignated and designated funding. While TDR does not routinely report these figures in this way, the review team consider that these calculations are of value as they illustrate the amount of contribution by undesignated and designated funding to operation support costs. What this shows is that a higher proportion of undesignated funds are going to operational support than designated funds and that the gap between these proportions has grown over the last three biennia.

109. The WHO 13% charge for programme support costs (PSC) is applied to designated funds only. Where designated funds come from within WHO, e.g. from the TB programme, PSC is not charged and, in the case of other UN agencies, other agreed rates apply. In addition, some of the donors of undesignated funds have agreed to provide additional amounts to support a specific ongoing project. These funds are referred to as "*soft designated*" or "*soft earmarked*". They do not require additional reporting and no PSC is charged. In terms of income, they are considered by WHO as undesignated but, in terms of expenditure, are treated as designated by TDR. Based on figures supplied by TDR, the amount received in PSC was $1.0m in 2016-17, $0.9m in 2018-19 and $1.2m in 2020-21. The amount, as a proportion of designated funds expended, has decreased over that period from12.5% in 2016-17 to 8.6% in 2018-19 and 8.0% in 2020-21 reflecting a rise in DF that either has no PSC charged on it or a lower rate. For example, in 2016-17, PSC of 13% was charged on 84% of all DF as compared to only 61% in 2020-21.

110. Money generated in PSC is held by WHO in a particular account and is primarily used by TDR to pay a central WHO charge (Administrative Service Agreement – ASA). However, ASA is not based on a percentage of designated funding but takes the form of a fixed fee charged per biennium. While previously, this was based on a fixed percentage of income, it is now a fixed fee calculated taking into account the number of staff and number of contracts. Based on figures provided by TDR, the ASA was $2.2m in 2016-17, $1.5m in 2018-19 and $1.2m in 2020-21. TDR uses money raised from the PSC to pay this charge covering any shortfall from undesignated funding. In 2016-17, 48% of ASA was paid from PSC but this rose to 57% in 2018-19 and to 96% in 2020-21. This means that, in 2020-21, nearly all the WHO charge was covered from designated funding with less than $50k being paid from undesignated funding. This is a point that the TDR Secretariat stresses namely that a much higher proportion of the WHO charge is paid from designated funding than from undesignated and this proportion rises as the amount of designated funding, on which PSC can be charged, rises.

[10] Figures for 2016/17 and 2018/19 are based on financial reports and those for 2020/21 are based on projections as of September 2021.

111. One area where designated funds are not contributing directly is to TDR core organizational costs, that is, TDR does not charge a percentage of its core costs to designated funds in the same way that WHO does. To date, all the funds generated through PSC have been paid directly to WHO to cover part of the ASA. If the amount generated through PSC exceeded ASA there would then be a contribution to TDR core costs. That situation almost arose in 2020-21. In addition, TDR tries to maximize operational salaries charged to designated funding projects. Where these prove to be an overestimation, this would effectively mean a contribution to TDR's core costs.

112. The TDR Secretariat comment that TDR deliberately does not charge DF a proportion of its core costs for a number of reasons. First, there are concerns that TDR should not be dependent on designated funding for meeting its core costs as this has been problematic in the past. This is a valid concern and it is good to ensure that core costs can be fully met from undesignated funds. But, if in that scenario, some of the core costs were then met from designated funding, this would then mean more undesignated funding would be available for operational costs. Second, there are concerns that if some core costs, e.g. salaries, were charged directly to designated funds, this might limit the independence of those staff members. This might be the case if individual salaries were charged to specific projects, e.g. x% of the Director's time. But, this would be less likely if the charge was as a percentage of income, similar to the WHO PSC.

113. This analysis raises a number of issues which probably need to be discussed and agreed by TDR's governance bodies. First, TDR's undesignated funders might be in agreement that they should pay all of TDR's core costs, recognizing that designated funds are covering a substantial proportion of WHO's administrative charge on TDR. However, if they believe that designated funds should be contributing to TDR core costs, in the same way that they contribute to WHO core costs, there may be need to discuss if designated funders would be willing to pay towards TDR's core costs and if that would be allowable under WHO's systems. One option would be to charge an additional 6% on designated funds to contribute to TDR's core costs.

114. Finally, the percentage of TDR's expenditure (19%) going on operational support is relatively high and this may reflect that all TDR's staff are based at global level, i.e. in Geneva. It may be good to monitor and report this percentage even perhaps incorporating it as a KPI. There may also be a need to take steps to reduce transaction costs where possible.

115. The COVID-19 pandemic has had profound implications on TDR and how it works and these are considered elsewhere in this report (see p72). Financially, it has meant that funds, which would have been spent on travel and subsistence, were not spent and, in the short-term, this resulted in lower levels of spending. However, given the unusual circumstances, funders have agreed that TDR should be allowed to carry over higher levels of funding than would be permitted normally.

116. The last review in 2016 [1] noted that many of TDR's management systems and processes were dependent on WHO as Executing Agency. There were specific problems in this area including the lack of a fit-for-purpose unified project management system and the threat posed by a new global mobility policy. In terms of WHO systems, one staff member remarked to that review that "*working with WHO sometimes feels like pushing an elephant upstairs*". Annex 6 (p119) briefly compares the assessment of particular systems made by the sixth review with the situation now. Overall, the extent of problems experienced by TDR as a result of WHO systems appears to be reduced as compared to the time of the sixth review. One major contributing factor is the much improved project management system now being used.

117. In terms of the composition of the TDR Secretariat, 11 (37%) of the staff are male and 19 (63%) are women. Among professional staff only, nine (45%) are male and 11 (55%) female. Among administrative staff, more than three-quarters (8 of 10, 80%) are female. Of those on higher grades,

six (55%) are male while five (45%) are female. Of those on lower grades five are male (26%) and 14 are female (74%). These figures are illustrated diagrammatically in Figure 12.

118. Figure 13 compares these figures with WHO headquarters and WHO as a whole and this shows that the proportion of women among TDR staff mirrors WHO headquarters exactly for all staff (63%) and for G staff (80%) and almost exactly for P staff (55% for TDR and 53% for WHO headquarters). A higher proportion of those on higher grades are women in WHO headquarters (66%) than in TDR (45%). This is largely due to the high proportion of women in G6 positions in WHO headquarters (180 of 220, 82%).

Figure 12: Male:female distribution of TDR staff overall, by type of staff and by grade

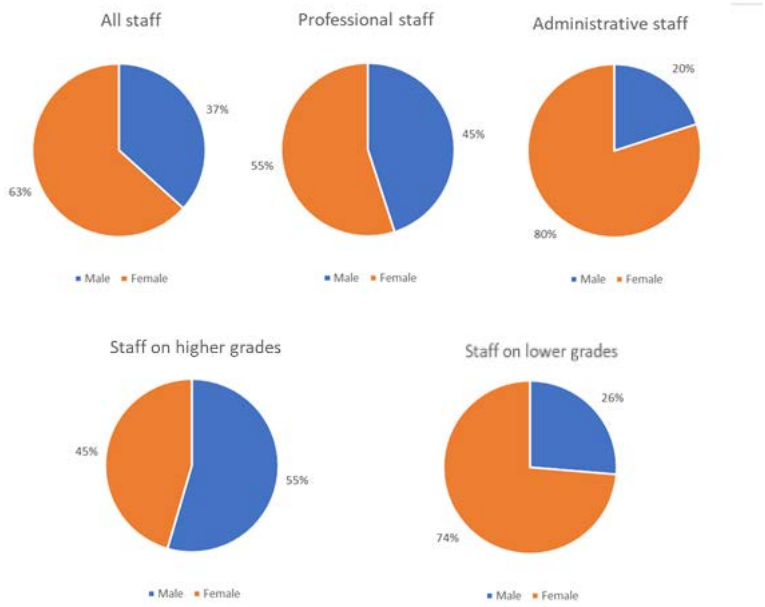
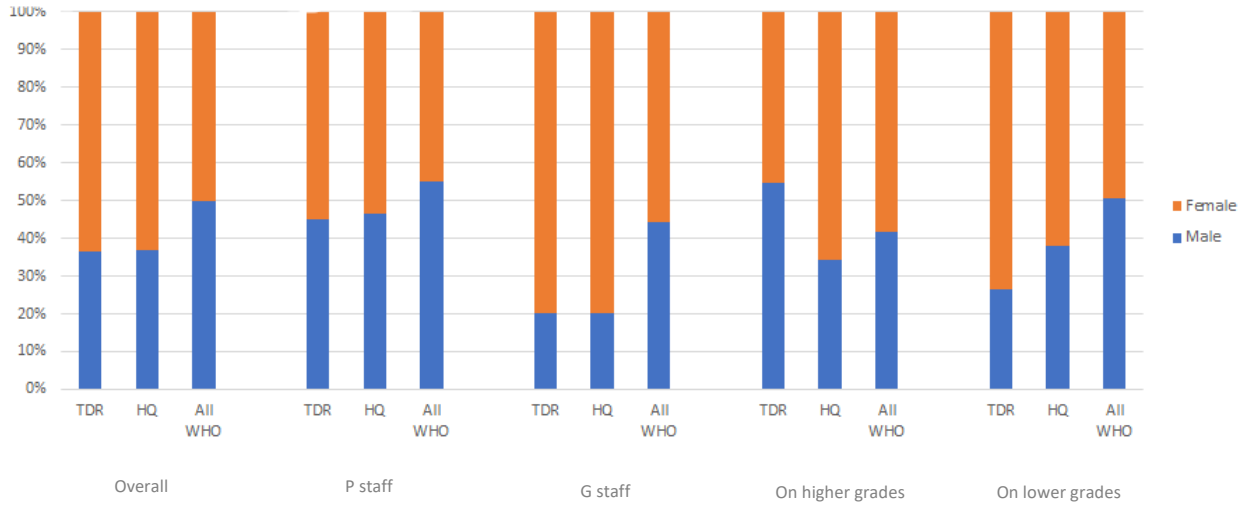
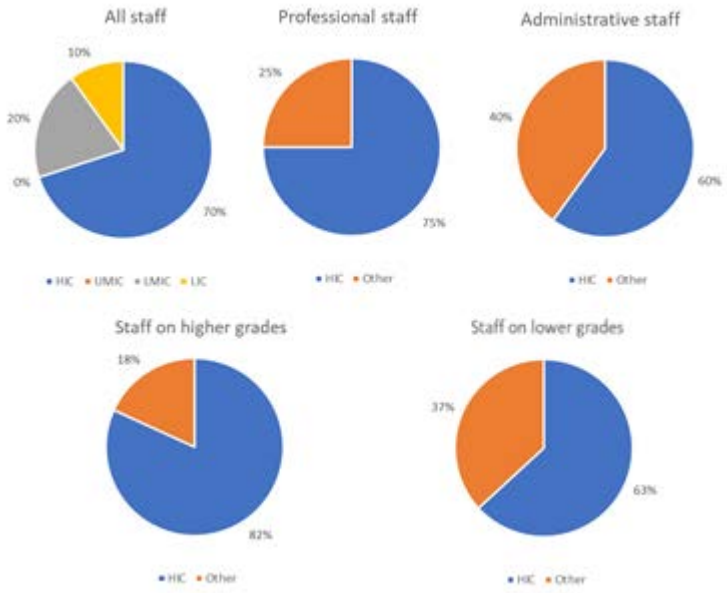


Figure 13: Male:female distribution of TDR staff compared to WHO HQ and overall



119. In terms of nationality, almost three-quarters of TDR staff are from high-income countries (21 of 30, 70%) while six are from lower-middle-income countries and three from low-income countries. There are currently no TDR staff from upper-middle-income countries. The percentage of professional staff members from high-income countries is slightly higher (15 of 20, 75%) and of administrative staff slightly lower (6 of 10, 60%). Staff from high-income countries are more likely to be on higher grades. Nine of 11 people on higher grades (82%) are from high-income countries. Putting it another way, of all staff from high-income countries, nine (43%) are on higher grades as opposed to only two from low- or lower-middle-income countries (22%). These figures are illustrated diagrammatically in Figure 14.

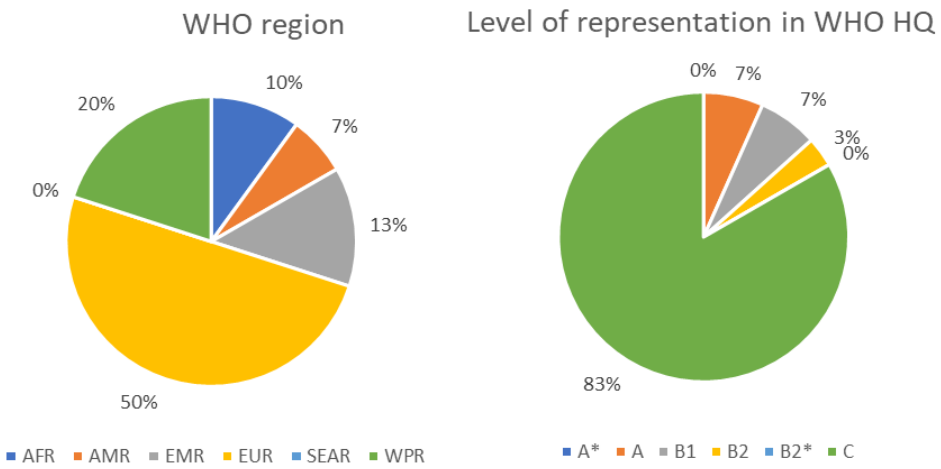
Figure 14: Nationality of TDR staff by country income level overall, by type of staff and by grade



120. Also, in terms of nationality, half of all staff (15 of 30) are from WHO's European Region. Six are from the Western Pacific Region, four from the Eastern Mediterranean Region, three from the African Region and two from the Region of the Americas. Currently, there are no TDR staff from WHO's South-East Asian Region. WHO also grades countries in terms of their level of representation among their staff from A* to C.[11] Most TDR staff (25 of 30, 83%) are from category C countries, i.e. they are over-represented among WHO staff. Two are from under-represented countries (A), another two are from countries within the range but below the midpoint (B1) and one is from a country within the range but above the midpoint (B2). These figures are illustrated diagrammatically in Figure 15.

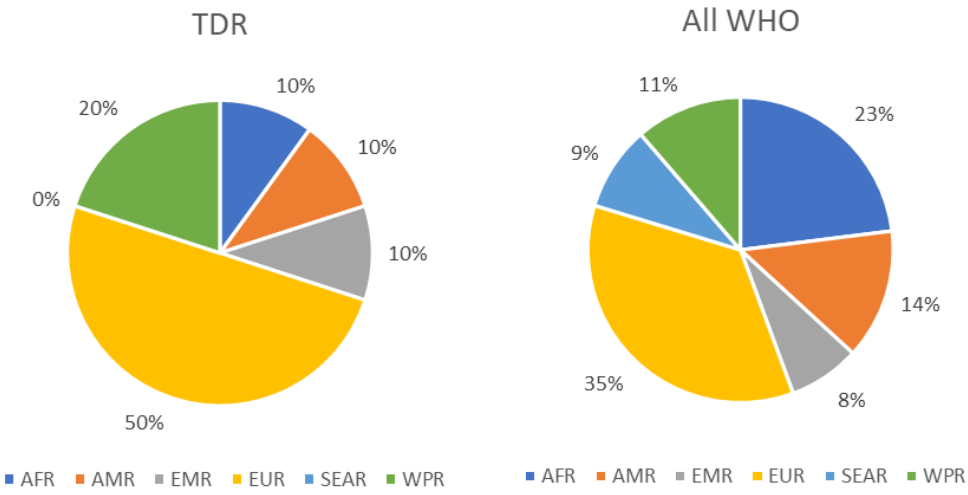
[11] A* are unrepresented countries, A are underrepresented countries, B1 are countries within their range but below the midpoint, B2 are countries at or above midpoint of range, B2* are countries at the maximum of their range and C are countries above the maximum of their range.

Figure 15: Nationality of TDR staff by WHO region and level of representation in WHO



121. Figure 16 compares the regional distribution of professional staff in TDR with that within WHO as a whole. This shows that there is a higher representation of people from WHO's European and Western Pacific Regions among TDR professional staff than among WHO professional staff as a whole. Conversely, representation from WHO's African and South-East Asian Regions and the Region of the Americas is lower among TDR professional staff than for WHO as a whole.

Figure 16: Comparison by region of nationality of TDR and WHO professional staff



122. The TDR Secretariat is aware of these issues and reports being keen to address them. However, the secretariat faces certain limitations including relatively low staff turnover and WHO's recruitment procedures which mean that although diversity can be considered when advertising positions and in initial shortlisting, the final decision needs to be based on the best candidate for the role. There are concerns among some TDR staff about potential biases within this process.

123. Risk management was identified as an issue both by WHO's external auditor [23] and by the sixth review [1]. In brief, some of the concerns were that:
    - The risks identified and the mitigation strategies were quite general and high-level.
    - The approach to risk did not clearly identify the potential impact of the risk or the likelihood of it occurring.
    - Responsibilities for risk management were highly centralized with either the Director's office or PPM.
    - Risks were being prematurely closed when it might be more appropriate to simply lower the risk level.
    - Risk assessments were needed for each new activity and these were not being done.

124. TDR does have a risk management policy and procedures [28] but these appear to pre-date the sixth review. They explain the purpose and objectives of the policy and give some definitions, principles and scope. Under procedures, it covers responsibilities and these envisage responsibilities for risk management shared across TDR. Several steps are identified and under risk prioritization, the basics of assessing likelihood and impact of risk are discussed. Significant risks[12] are defined fairly generically on p1 but, on p3, they are defined as risks that have high potential impact and medium to high likelihood of occurrence.[13] The document seems to envisage risk review only occurring every two years. However, the TDR Secretariat reports that they review risks twice per year at Portfolio Review meetings and risks are also reviewed at each STAC, Standing Committee and JCB meeting.

125. Clearly, risk is reviewed within TDR at a number of different times and in various ways. A review of the risk management plan was one of the objectives of a management group meeting for an annual portfolio review in February 2022. [29] A risk management report, produced by PIM, was one of the background documents for this meeting. On the following day, a similar meeting was held with all staff. [30] The concept note template [31] used by TDR for grant proposals and projects includes space for a narrative description of potential risks and mitigation actions. The grant application form [32] used by TDR asks for similar information but in tabular form. This includes space for three potential risks and does not specify whether additional risks can or cannot be added.

126. Details of TDR's "*significant*" risks are contained within a WHO risk management tool. [33] Information from this was briefly demonstrated to the review team and exported material was shared with the team in Excel format. This contains information on 13 risks, of which four were noted as closed. Each risk has a number, a risk description and a risk area. Risks are linked to outputs, categories and programme areas. The date each risk was opened is noted and the date when the risk was last updated. All open risks were updated in January 2022. Only one risk has been added since 2017 and that related to global health emergencies. Each risk also identifies a risk owner and receives a score for impact and probability, an assessment of risk level and a score for risk criticality. There are then details of the risk response and risk response actions.

[12] This term seems to be being used in a number of different ways which are potentially confusing. First, it is used to describe the main risks facing TDR as an organization and which need to be reported to and monitored by the JCB. This is largely the sense here. However, there are a range of other risks, also called significant which relate to expected results. Finally, WHO uses the term significant in a very specific way, as its second highest risk level. WHO, in its user guide for its risk management tool recognizes six categories of risk – financial, political/governance, reputational, staff/systems/ structures, strategic and technical/public health. Each category has a number of risk areas. The level of risk is calculated by multiplying the impact and probability (likelihood) scores. These scores correspond to very low (1), low (2), medium (3), high (4) and very high (5). WHO recognizes four levels of risk – low, moderate, significant and severe. Each level depends on the precise scores for each of impact and likelihood but the risk level is very low with scores of 1-5, low with scores of 4-9, significant with scores of 5-12 and severe if scores of 15 or more. The level of risk may vary even if two risks have the same risk score. For example, a risk that is considered very high probability but very low impact would score 5 but would be ranked as a low level of risk. On the other hand, a risk that is considered very low probability but very high impact would also score 5 but would be ranked as a significant risk. It is worth noting that of the nine risks currently reported by TDR to the JCB as "*significant*", four are low risk using the WHO system, one is moderate and four are significant. TDR has no severe risks according to this system – see Figure 17.

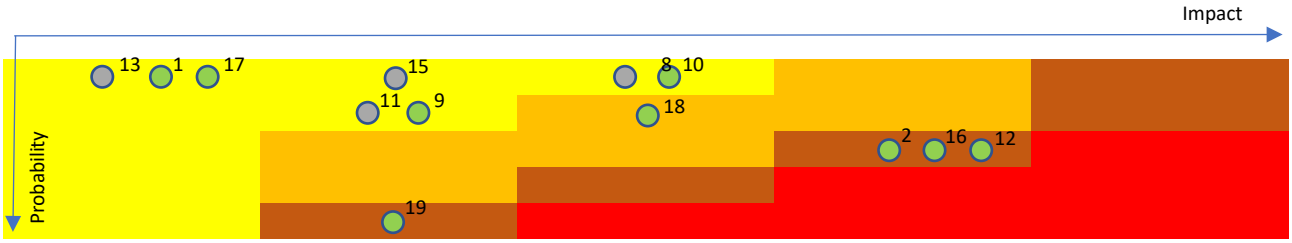
[13] This definition does not fully match the definitions used by WHO. First, WHO uses five numerical scores/categories to rate impact and probability of a risk. According to the WHO system, it is true that a risk with high impact and medium probability/likelihood would be rated significant but one with high impact and high likelihood would be rated severe. Similarly risks with very high impact but very low probability or low impact but very high probability would also be ranked significant by WHO.

127. Also, TDR's expected results strategic plans [34] identifies "*significant*" risks for each expected result with actions to mitigate. Annex 7 (p122) briefly lists those risks. Based on a discussion with TDR staff, it does appear that staff are identifying risks both initially and an ongoing basis. However, while these risks are assessed qualitatively, it does not appear that there is a systematic way of assessing risk, for example, in terms of probability and impact. There does not seem to be a register of these risks. It does not appear that there is a formal process for reporting and updating these risks although there are opportunities to discuss risks in weekly management group meetings and in portfolio meetings. While it is possible for TDR staff to escalate risk, and this has been done in two cases over recent years, it does not appear that this is being done very systematically, e.g. based on risk score. In several cases, a similar or the same risk is identified under different expected results (ERs). It is not clear the extent to which steps are taken to coordinate and ensure consistency as to how a particular risk is handled in different ERs.

128. TDR produces annual risk management reports for the JCB and these follow the same format each time. They contain some fairly general introductory remarks and then provide an update on progress. For example, the 2020 report refers to nine (or ten) active "*significant*" risks. Each of these is assigned a colour-coded icon which indicates whether the risk is fully controlled or has minor or major issues. Although the policy and procedures refer to using a matrix to assess likelihood/probability and potential impact, this approach is not used in these reports. From review of the ten active risks, it appears that where risks are classified as fully controlled or only having minor issues these risks might be being underestimated. Conversely, the only risk identified as having major issues relates to WHO mobility policy and it is difficult to see how this is the highest of all risks affecting TDR. Aren't there some risks which are more likely and could have similar or even more damaging impact? All the active risks remain the responsibility of either the Director's Office or PIM. It might be clearer if risks were presented in ways which reflect their relative likelihood and impact. One way of doing this is shown in Figure 17. This shows that currently TDR has no severe risks that it is reporting to the JCB. Of the open risks reported, only four are significant according to WHO's classification and the other five are either moderate (1) or low (4).

Figure 17: Mapping of TDR risks as reported to JCB to WHO risk categories

Note – circles represent identified risks. Grey circles are "closed" risks and green circles remain "open". Numbers refer to the risk number assigned by TDR and are summarised in the table below. Colour coding denotes risk level as follows – yellow = low; amber = moderate; dark amber = significant and red = severe



1. Portfolio alignment with strategy and proposed direction	8. Information and project management systems	14.
2. Income level	9. Communication of TDR's unique value and contribution	15. Management of Global R&D Fund
3.	10. Research results translation to policy and practice	16. Impact of WHO staff mobility policy on TDR operations
4.	11. Project selection and monitoring	17. TDR 2018–2023 strategy implementation
5.	12. Impact of WHO transformation on WHO Special Programmes	18. TDR's visibility within collaborations and partnerships
6.	13. TDR strategy and 2014-15 workplan implementation not effective	19. Anticipating global health emergency events
7.		

129. The report proposed "*closing out*" the risk on information and project management systems. The report contains, as an annex, details of "*fully closed out*" risks. It is a bit unclear what this material is for or how accurate it is. From reviewing the detail of the risk to be "*closed*" and those that have been "*closed*", there are some where closure is appropriate, for example, where they refer to the 2012-17 strategy, to the 2014-15 biennium budget or to the R&D pooled fund. However, there are other risks, including the one being proposed for "*closure*", where some level of residual risk remains but it perhaps falls below the level of "*significant*" which needs to be included in a report of this nature. The report could be much clearer as to which risks no longer meet the threshold for "*significant*" and those which can truly be closed.

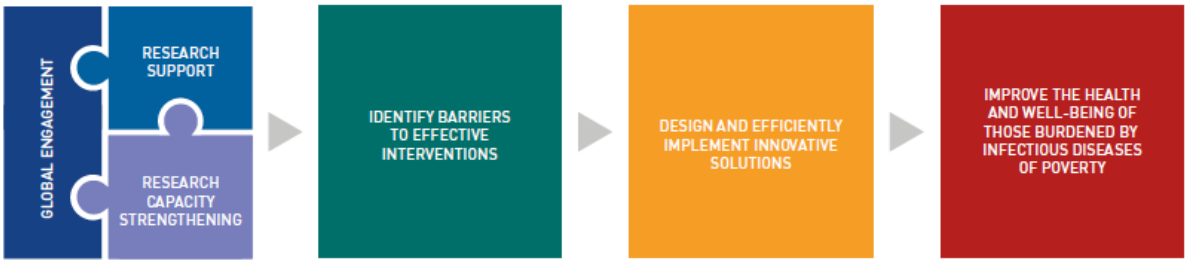
Impact

130. TDR's 2018-23 performance framework [11] includes a description of the programme's intended impact, *"countries generating and using the research evidence they need to leave no-one behind when acting to reduce the burden of infectious diseases of poverty."* This statement aligns with the SDGs' emphasis on equity and leaving no-one behind as well as with the GPW13's focus on driving impact at country level.

131. Focusing on implementation and operational research provides an opportunity to demonstrate how TDR-supported research contributes to improving public policies and programmes. TDR's niche in the research-to-policy-implementation continuum is conceived as a brokering role between the generation of research products and evidence, obtained through R&D and academic research, and the policy level, with normative and health system strengthening functions delivered by WHO and other international partners. Moreover, designating countries as the principal actors responsible for generating evidence to inform policy implicitly shifts TDR's role from generating research to a facilitating and capacity-strengthening role for local actors in low- and middle-income countries.

132. TDR's impact pathway diagram [2] (see Figure 18) illustrates how the three strategic areas of TDR (research for implementation, research capacity strengthening and global engagement) together lead to identifying barriers to effective interventions, which in turn allows the design of innovative solutions which can then be translated into policies and programmes that effectively improve health for all.

Figure 18: TDR's impact pathway (from TDR strategy 2018-23)



133. The next part of this section explores the extent to which TDR is able to identify and assess its impact. The performance framework has evolved since the 2012-17 framework [35] associated with the previous strategy. The new framework adds a layer of indicators at impact level in terms of contribution to reducing the burden of diseases of poverty and reaching the SDG goals. The framework's impact indicators refer to SDG3 on good health and well-being, SDG4 on quality education, SDG5 on gender equality, SDG6 on clean water and sanitation, SDG9 on industry, innovation and infrastructure, SDG10 on reducing inequalities, SDG11 on sustainable cities and communities, SDG13 on climate action and SDG17 on partnerships.

134. TDR's performance framework emphasizes the need to identify the credible contribution of the programme to global health objectives, while highlighting the methodological difficulties in doing this: *"measuring the specific outcomes and impact of a single programme is challenging, as improvements made in global health are often the result of synergistic actions taken by numerous stakeholders, and are seldom attributable to a single programme."* The 2019 JCB report [36] also notes that "*to identify impact on policy requires constant monitoring, which is not an easy task."* The framework relies on evaluations such as periodic external reviews to compile evidence of contribution to TDR's impact on improving policies and programmes, while identifying a credible pathway to improving health and well-being targets in line with the SDGs.

135. TDR's "*impact goals*", listed in the 2018-23 strategy, are formulated at a level where TDR's contribution can be credibly identified. The four impact goals are:

- **Increase access to health interventions** in countries with high burdens of infectious diseases through the generation and use of high-quality research on implementation.
- **Accelerate the development of innovative tools, solutions and implementation strategies** essential for disease control and elimination through research and partnership.
- **Build a critical mass of researchers in disease-affected countries** who can conduct, lead and further develop research through training and mentorship.
- **Engage a broad global community** to facilitate the role of research for development, and advocate for the use of high-quality evidence to inform policy.

136. The next part of this section considers the extent to which evidence is available to assess impact. While there is increased attention paid to framing results in terms of impact on improved policies and programmes, and, where possible, on contributing to global health targets, the extent to which TDR is able to capture its contribution varies between the different areas of work.

137. In order to assess the impact of TDR-supported research, one strategy is to compile evidence from publications. Peer-reviewed publications provide credible evidence of the impact of specific innovations piloted under implementation research conditions. However evidence is limited to the remit of the studies. There are few meta-analyses conducted to evaluate the overall contribution of TDR-supported operational research to policy change and the improvement of programmes. Such reviews include the SIHI case studies and lessons learned of 2017 [37] and the case compendium until 2020 [38], the small grant scheme review which covers the publications in the period 2014-2019, evidence from disease elimination programmes, and a review of the WARN-TB/CARN-TB networks. [39] TDR has also collected examples of countries taking up successful interventions piloted under implementation research conditions into policies and programmes, although these are not systematically compiled but rather used to illustrate the contribution of specific interventions.

138. The contribution of interventions focusing on strengthening the capacity of institutions and individuals to conduct and use implementation and operational research has been harder to establish. TDR staff interviewed for this review recognize that there are specific challenges associated with identifying the impact of research capacity strengthening activities, as TDR-supported trainings are one among many capacity development inputs that researchers may receive through their career. The sixth review [1] considered there were limitations in terms of articulating the impact of TDR's work particularly for the research capacity strengthening strand, noting that funders require evidence of contribution to change beyond output level (achievement of planned activities and publications) in order to advocate to their organizations for funding: *"team leaders need to identify a more comprehensive monitoring and evaluation framework and particularly optimise the potential benefits of TDR Global in respect of measuring impact and capturing the benefits of overcoming barriers of transitioning new initiatives into implementation."*

139. TDR has combined different approaches to describe the contribution of its RCS activities to the capacity of individuals and institutions in low- and middle-income countries, and to trace a plausible link between increased capacity and better health policies and programmes. In line with the sixth review recommendation, the TDR Global platform has allowed tracking of TDR alumni and has served to develop case studies providing qualitative evidence of the impact of TDR-supported training on the career of alumni. The risk report of 2020 [40] notes that TDR Global was developed in part to showcase TDR's impact on its alumni's careers in order to demonstrate the value added of the training programmes to donors. Other means to track the impact of TDR-supported training on individual's careers and contribution to improving policy and programmes include several surveys in recent years: a survey of SORT IT, CRDF and PGTS alumni in relation to their contribution to the COVID-19 response [4], a survey of TDR Global alumni [41] regarding the impact of TDR training on their careers and publication work, and a review of CRDF fellows' career progression and contribution to clinical trials. [21] It is noteworthy that different training modalities do not lend themselves equally to outcome and impact evaluation. It is easier to demonstrate a tangible change in alumni's careers as a result of a long-term scholarship than from the MOOC, although the numbers reached by the latter are much higher. In terms of strengthening institutional capacity, the two RTC evaluations available [42] focused on institutional capacity and output levels, rather than on outcome and impact levels. There is little evidence that the contribution of the institutional capacity building is documented in terms of improving policies and practices, although the RTC logic framework, presented in the evaluations, includes an impact level statement: *"in line with the SDGs, enhance the contribution of research to disease prevention, control and elimination".*

140. Overall, there is strong evidence of the impact of TDR-supported research on improving health policies and programmes at country level, and some evidence of its contribution to the achievement of global health targets. There is also good evidence of the impact of some of the research capacity strengthening activities on individual researchers' capacity and contribution to improving policies and programmes through implementation research uptake. Although the impact statement is envisaged at country level, this review has not found country-or regional-level evaluations that would provide a picture of how TDR's interventions combine to have an impact on a country's ability to generate and use research evidence, and identify intended and unintended impact of the programme as a whole at country level.

141. The next part of this section considers areas in which TDR's work may have had impact. While TDR's impact goals, as the SDGs themselves, are inter-related and the different strategic areas work together towards those goals, it is possible to identify particular areas of contribution led by the different programmes, while outlining how interventions may or may not be mutually reinforcing to achieve impact. Key TDR areas of contribution during this strategic period are outlined below under each of the four impact goals. Some of the factors that have facilitated or hindered these achievements are also identified.

142. The impact goal of **increasing access to health interventions** relates particularly to SDG 3 Goal 3.3 on ending the epidemics of AIDS, TB, malaria and NTDs and SDG 3-Goal 3.8 on achieving Universal Health Coverage. TDR has worked towards this impact goal by seeking to eliminate diseases of poverty and supporting health professionals to generate and use implementation research in their work.

143. TDR-supported research has continued to focus on the elimination of diseases of poverty and on supporting the realisation of global health goals and strategies such as the roadmap for neglected tropical diseases [43], the End TB Strategy [44] and the Global Technical Strategy for Malaria. [45] According to several respondents, both internal and external to TDR, a key factor in the programme's ability to contribute to the elimination of diseases of poverty has been its long-term engagement with the issue, independent from shifting development priorities. TDR is perceived as "*a good listener",* responsive to countries' needs and reflecting those priorities in its research programmes. One TDR respondent reflected that the provision of undesignated funding to TDR *"allows it to really listen to*

what countries want, be a voice for what these countries see as priorities and to stick in the long run with pursuing particular objectives, while a lot of other organizations jump on bandwagons."

144. TDR has retained in-house scientific and research capacity in specific thematic areas, inherited from the previous strategic approach where the organization was involved in developing products and filling the gap on neglected tropical diseases research. This approach has shifted to a facilitation role since the 2012-17 strategy [46], using calls for proposal to promote country-led research in these areas. TDR-supported research targets specific gaps in understanding contextual barriers to reaching the global targets and focuses on "*last mile*" strategies for elimination of diseases of poverty. Several areas of impact during this strategic period include:

- On onchocerciasis elimination. TDR has continued to build on its long-term engagement on this issue in line with the target of elimination in 80% of African endemic countries by 2025. TDR has supported the development of new tools to address sub-optimal response to ivermectin treatment. In 2018, a new drug was approved by the FDA against onchocerciasis, moxidectin, which was developed with the previous involvement of TDR. The programme has since shifted its support to implementation research on how to deploy this new product within onchocerciasis elimination strategies.

- On the elimination of visceral leishmaniasis (VL) (kala-azar) in Nepal and India. In this area, the role of TDR has also evolved from conducting research to supporting in-country research centres to address implementation issues with respect to case detection, vector control and evidence-based policy development, contributing to achieving the sustained elimination of the disease from the Indian sub-continent. TDR's 2018 Annual Report [18] presented evidence of decreasing case-load of VL in Nepal (see Figure 19), outlining how TDR interventions had been supporting efforts to eliminate the disease in the country.

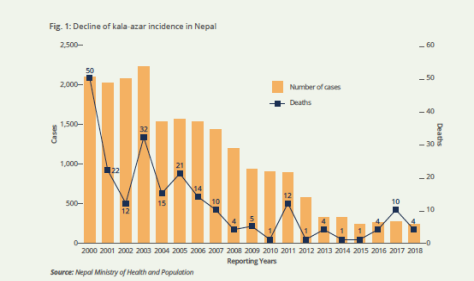


Figure 19: Decline of VL incidence in Nepal: 2000-2018 (from TDR annual report

- On residual malaria. Six TDR-supported research projects have identified barriers and solutions at community level to address the local drivers of transmission in 13 countries in Africa, South-East Asia, Latin America and the Western Pacific. While the impact of this work at scale is not yet documented, publications show the effectiveness of proposed strategies at local level and their potential for replication.

145. Beyond supporting country-led operational research, TDR has worked to accompany the translation of successful interventions piloted under implementation research conditions into policies and programmes. An important strategy for this has been to support research beyond the academic sphere by engaging public health professionals, both in policy and programmes and in clinical positions, in conducting operational research. This has allowed TDR to bridge the gap from research to implementation and to facilitate the uptake of effective interventions.

146. In this respect, the SORT IT programme has trained 925 public health professionals from 50 partner institutions from 2009-20. [20] Interviewed SORT IT alumni noted the attention paid to the quality of engagement of students and personalized exchanges, ensuring that policy makers embedded in their institutions are sensitized to the value of utilizing results from implementation research in their day-to-day work and are capacitated to conduct further implementation research projects. For example, one noted "i*t is an opportunity for (public health professionals) to use data, get information from the*

data, develop a good protocol, get a paper published and do it on your own going forward." A review of the SORT IT programme between 2014 and 2019 [47] analysed 395 publications from the students and concluded that the programme had succeeded in increasing the research output from researchers from low- and middle-income countries, as 94% of the papers' first authors were from low-and middle-income countries in contrast with the situation of first authorship being dominated by researchers from high-income country in scientific publications overall. Moreover, according to TDR's expected results tracking system, in 2021 about 69% of research evidence generated through SORT IT contributed to policy and practice decisions. [48] Box 5 includes several illustrations of how the SORT IT programme has contributed to informing evidence-based policies in the countries where it has been delivered.

Box 5: Examples where the SORT IT programme has contributed to informing evidence-based policies

In 2017, a study conducted in Guinea highlighted the persistent negative impact of the 2014 Ebola outbreak on child vaccination, [49] which led the Ministry of Health to conduct mass community awareness and education campaigns on vaccination and to introduce a safety net of vaccine stocks in preparation for future outbreaks.

In 2019, SORT IT research findings were used to optimize Global Fund- and PEPFAR-funded programmes in Ukraine. [18] The WHO Regional Office for Europe used the study findings to inform the implementation of the Roadmap to Implement the Tuberculosis Action Plan for the WHO European Region 2016–20.

In 2020, the Kenya Snakebite Research and Intervention Centre (K-SRIC) used the SORT IT approach to tackle the burden of snakebite in Kenya, as well as to improve community engagement on this disease. [20]

147. There are however limitations to maximizing the impact of the programme. According to members of partner organizations and alumni from the programme, the assumption that publications will translate into policy-useable products does not always hold true. Alumni have called for more attention to be paid to communication and advocacy skills needed to ensure the relevant research findings are taken to scale. In 2021, a new module was included in the SORT IT programme on effective communication of research evidence which aims to address these concerns.

148. Impact has varied depending on country context, as various external factors may influence the ability of those trained to continue using implementation research protocols in their work. One respondent noted, "w*e see innovative projects from students, but there is no follow-up, we need to put people in large research teams. This is also a problem linked to the country. Research in innovation that requires means are not financed."* Addressing the facilitating and hindering factors for alumni to continue generating research and ensuring that results of implementation research are used in policies and programmes may require further support beyond the additional module of the SORT IT course. More strategic support to research uptake capacity, mobilizing partnerships at country level to address bottlenecks and establishing linkages between SORT IT alumni and other programmes of TDR may increase the impact of this intervention.

149. The impact goal of **accelerating the development of innovative tools, solutions and implementation strategies** relates in particular to SDG 3, Goal 3.b on supporting the R&D of vaccines and medicines for communicable and non-communicable diseases and Goal 3.d on strengthening countries' capacity for early warning, risk reduction and management of national and global health risks. TDR has worked towards this goal by seeking to develop flexible and innovative tools that can be applied in different contexts and by accompanying scale-up of successful interventions through partnerships.

150. In terms of developing flexible and innovative tools that can be applied in different contexts, TDR has produced innovative tools and solutions that are designed to be relatively simple and flexible to use so that they can be adapted to different purposes and contexts and facilitate their uptake. An example of this is the Early Warning and Response Systems (EWARS) tool for dengue outbreaks [50], which is a web-based tool that allows countries to analyse dengue surveillance data, identify alarm indicators and detect dengue outbreaks rapidly. This system was adopted in Mexico, and further research has been conducted to assess its use at scale and to determine its efficacy in preventing dengue outbreaks. [51] The tool and associated training have now been piloted by other countries in the region.

151. Another key success factor has been the ability of TDR to support countries in scaling-up successful IR pilot interventions by leveraging partnerships. In this regard, TDR has promoted a regional approach to TB control through the development of networks in West and Central Africa (WARN-TB and CARN-TB), with the objective to boost research embedded in national TB control programmes (NTPs). The regional networks' activities have helped identify, design and conduct TB research in the region, and have promoted better sharing of experiences, strategies and results in order to support countries in reaching the End TB goals. [44] TDR has fostered a partnership between countries and other partners such as the WHO Regional Office for Africa and the Global TB Programme; the West African Health Organization; The Global Fund; The International Union Against Tuberculosis and Lung Disease; the Damien Foundation; and European and African universities and research institutions. A review of the WARN-TB/CARN-TB networks [39] concluded that the fact that NTPs were the principal actors of the programmes made it possible for some countries to change their practices based on study results. This partnership has allowed the implementation of several research programmes that resulted in scaling up proven interventions in the sub-region (see for example Box 6).

Box 6: Examples of research programmes that resulted in scaling up of proven interventions

In Benin, Guinea and Senegal, based on the result of the RAFAScreen project, which investigated the cost-effectiveness of integrating TB screening strategies for people with HIV and diabetes, those countries started to adopt these approaches nationally. The NTPs of Burkina Faso, Ghana, Guinea Bissau, Mali, Nigeria and Togo then started to develop an implementation research project to increase TB diagnosis in people with HIV based on RAFAScreen project results.

Based on successful feasibility results of this project, countries in the sub-region then looked at integrating TB screening in other prevention and community outreach programmes, such as door-to-door nutritional programmes (Mali and Senegal), vaccination (Côte d'Ivoire) and screening of pregnant women and post-partum care (Benin). This is an example of a successful strategy to promote the scale up of pilot interventions conducted under implementation research conditions. Although the final impact on TB outcomes in those countries is not yet documented, the case can be made that the WARN-TB/CARN-TB networks have contributed to ensuring that countries generate and use research evidence to reduce the burden of infectious diseases of poverty.

152. The impact goal of **building a critical mass of researchers in disease-affected countries** relates in particular to SDG 9, Goal 9.5: to enhance scientific research, (…) encouraging innovation and substantially increasing the number of research and development workers per 1 million people. TDR has worked towards this goal by increasing the number of researchers in low- and middle-income countries that conduct implementation research and by supporting the institutionalization of implementation research courses in training institutions in low- and middle-income countries.

153. TDR has put in place several training modalities to increase the number of individual researchers trained to conduct implementation research in low- and middle-income countries. A key strategy has been to develop online training modalities such as the MOOC which reached more than 3,000 enrolled students in 2021. While the impact of the MOOC is challenging to assess, it offers clear advantages in

terms of increasing the reach of the training programme, making it available at no cost to researchers in low- and middle-income countries.

154. However, many alumni and respondents from partner organizations considered that the quality and impact of short-term, virtual courses is lower than that of longer-term modalities such as the PGTS and the CRDF. Several interviewed alumni from the PGTS and CRDF considered that the TDR-supported training had been a "*game changer*" in their careers. Long-term scholarships are seen as a particular value-added of TDR, with specific aspects of the TDR programme multiplying their impact. In particular, the fact that students are selected via a home-institution and are supported to continue their work after completing the course through return grants has been perceived as particularly effective in avoiding "*brain drain*" and ensuring that researchers can pursue their work in their home institution. One of the alumni from TDR's PGTS explained that *"TDR has promoted that researchers should work with the programmes in country. They don't engage you to work alone, you have to work with the national programmes. If you take the malaria or NTD control programme, a lot of their strategy in based on evidence generated through TDR. We did not just write the study and give that to the programme, we worked with them during implementation."* Through the TDR Global database, qualitative case studies have been gathered illustrating how TDR scholarships have contributed to increasing implementation research capacity in low- and middle-income countries. One such example is the CRDF fellow Dr Kalonji from DRC, who helped develop fexinidazole [20], the first all-oral drug for sleeping sickness and a "*game-changer*" in the control of the disease, leading to fexinidazole distribution in DRC from January 2020.

155. While PhD scholarships have not been renewed after 2017, several respondents commented that these could be effective to fill specific gaps in research skills and leadership in low- and middle-income countries. Support to post-doctoral work was also mentioned as a "*low hanging fruit*" for TDR to increase its value-added in research capacity strengthening. Since the programme has already developed relationships with academic and research institutions, respondents considered it might be relatively easy to use those relationships to sponsor PhDs.

156. Surveys have also provided a picture of how the skills gained by TDR alumni have contributed to their ability to improve policies and programmes. The COVID-19-related survey of TDR alumni has highlighted the fact that training skills obtained through activities such as SORT IT, PGTS and CRDF are transferable (see paragraphs 247-248). This ability of SORT IT, PGTS and CRDF alumni to "*pivot*" the generic skills they learned to the COVID-19 response shows an unintended positive impact of TDR's research capacity strengthening activities beyond the thematic areas covered in the training. It also illustrates the value of building implementation research capacity in order to support timely responses to outbreaks and pandemics.

157. Another important aspect of TDR's research capacity strengthening strategy is the focus on integrating the training of individuals with institutional capacity strengthening in low- and middle-income countries, to ensure that training offered is contextually relevant and cost efficient. Training activities are delivered by adopting a decentralized approach through regional hubs, the RTCs, and by handing over TDR courses to partner organizations that then manage those programmes through franchising and institutionalization of the training modules. In this way, TDR has put in place a capacity strengthening model whereby the impact of training activities and material is multiplied by engaging in partnerships with a variety of training institutions in low- and middle-income countries, including universities and regional training centres or hubs. One RTC partner described the value of TDR engagement in building research capacity in low- and middle-income countries in this way "*TDR's training packages are developed together with low- and middle-income country researchers, not driven in high-income countries. They ask us to contribute when we develop good research practice. They have done well to involve people from endemic counties so when it is delivered it resonates more with researchers in the countries."*

158. The impact goal of **engaging a broad global community** relates particularly to SDG 17 on strengthening the means of implementation and revitalizing the global partnership for sustainable development. TDR has worked towards this goal by improving funding coordination for implementation research, by promoting data sharing to facilitate research from low- and middle-income countries, by leveraging co-sponsors to address multisectoral aspects of implementation research and by promoting a community of work on social innovations in health.

159. In terms of improving funding coordination for implementation research, TDR endeavours to leverage its network and reputation to advocate for funders to address health research funding gaps. Respondents from partner organizations and the JCB have pointed out how TDR's neutral position as part of the UN system has positioned it ideally to become the secretariat of the ESSENCE platform of funding agencies. This allows TDR to convene a unique forum where funders can harmonize their support to health research in low- and middle-income countries. One respondent from a partner organization noted, *"there is a plethora of funders with same top-level goals to impact on research capacity strengthening. The point is how to make sure you find each other and do not duplicate your actions. Without scientific evidence you cannot know how to prioritise countries and themes."* TDR has successfully facilitated the ESSENCE platform for dialogue among funding and development partners. A review of the ESSENCE mechanism was last conducted in 2015 [52], which concluded that evaluating the impact of the initiative on health research capacity in low- and middle-income countries was difficult, although there was anecdotal evidence of the contribution of the scheme to fostering dialogue and sharing of information among the members. The review noted a "*strong anecdotal comment that the ESSENCE initiative has contributed to intelligence that informs programming across organizations".* To date, there are examples of how the ESSENCE platform has helped coordinate funders' efforts. In Tanzania, the national government, the Netherlands and Sweden set up TASENE, a joint programme of funding [19] although this appears to have been a time-limited project which has now closed. [53] In 2019, ESSENCE developed country-based pilot models of collaboration between programmes to harmonize practices and optimize resources. These individual examples of collaboration however do not allow assessment of whether the platform is effective in addressing the main challenges of fragmentation and coordination of health research funding overall.

160. TDR has provided leadership in the area of data sharing to facilitate research from low- and middle-income countries. For example, TDR has worked in partnership with IDDO on sharing Ebola research data and ensuring that the data supports research capacity in the countries from which the data originates. Promoting data sharing and fair and equitable access to data have the potential to multiply the impact of research. The data collected can be used to answer multiple questions, which amplifies the impact of any particular data collection event. Interviewed partners have highlighted that "*TDR is a global convener on issues of data sharing in infectious diseases research. This is a relatively new issue, and TDR has taken the lead on "fair data", they talk in many conferences on this topic, presenting tangible ideas on data sharing and how to make data more available."* Although the impact of these efforts on research production in low- and middle-income countries has not yet been documented, progress made on data sharing by TDR is a milestone on the path to lifting obstacles to research capacity in low- and middle-income countries in the long-term.

161. Given the nature of the programme, TDR has an opportunity to establish collaborations with the four UN co=sponsors and to leverage their structures and programmes to ensure that the efforts on implementation research are aligned. TDR's engagement work has benefited from its proximity to WHO. This proximity has provided reputational advantage to the programme and this was highlighted by many external respondents. However, the ability of TDR to leverage WHO's capacity and structures to advance its objectives varies widely between regions. While some regional offices consider that TDR acts as the research arm of WHO at regional level, others have indicated that the collaboration was more limited and mostly at the level of information sharing. The small grants scheme constituted a key collaborative initiative between TDR and WHO regional offices who are responsible for implementing and managing the grants. The scheme has been the subject of a review [54] compiling

learning from publications supported by this programme between 2014 and 2019. While the review does not provide an assessment of the overall contribution of the scheme to country capacity to generate and use operational research results, it does offer insight into what interventions have potential for replication, highlighting research projects that present tools and practices with transfer potential. The review recommends building links between the researchers to capitalize on the projects and increase the impact of the scheme.

162. Although collaborations are less intense with other co-sponsors, TDR has participated in a collaboration initiative with UNDP since 2013, the Access and Delivery Partnership (ADP), which is now in its "*scale-up phase*". The ADP is a collaboration between UNDP, WHO, PATH, TDR and the Government of Japan and it aims to provide policy and technical support to low- and middle-income countries for the introduction and scale-up of health technologies related to TB, malaria and NTDs. It has recently worked on supporting national governments in low- and middle-income countries on the COVID-19 response and on the mitigation of the impact of the pandemic on the response to other infectious diseases. Recent achievements of the ADP [55] include capacity building initiatives in seven countries as well as regionally and globally, such as training of health workers and production of guidance and protocols on medical products procurement, supply chain management and promoting digital solutions for health-care delivery.

163. In terms of promoting a community of work on social innovations in health, Social Innovations in Health (SIHI) is considered to provide a rigorous methodology to document promising innovations proposed by communities and to encourage their translation at policy level. Innovations are first identified through crowdsourcing calls, then social innovations are selected for in-depth study so that lessons and impact can be scaled up to strengthen health systems. The programme includes different health topics such as health financing, HIV, malaria, maternal and child health, NTDs and primary health care. The SIHI impact model was described by a respondent as a triangle between communities, the policy level and back to the communities for the implementation at scale of the innovations. Another respondent involved in SIHI initiatives noted that the methodology had enabled her to influence policy makers saying, "*the SIHI methodology provides credible evidence to the policy makers. Working on SIHI has brought me closer to policy makers because we have a direct, objective deliverable for them: interventions that are tested*." The SIHI case studies and lessons learned of 2017 [37] and the case compendium of 2020 offer an insight into the contribution of SIHI innovations to progressing primary health care and to strengthening health systems.

Sustainability

164. TDR's current strategy [2] refers to the key role of research capacity strengthening, in general, and RTCs, in particular in promoting sustainability. TDR's theory of change narrative [56] also strongly links sustainability to research capacity strengthening. The current performance framework [11] includes sustainability as one of TDR's core values and defines it as "*the continuation of benefits after major guidance and support have been completed*." The framework also refers to this as sustainability of outcomes and seeks to measure this through the number of effective public health tools and strategies developed which have been in use for at least two years. This indicator is potentially problematic. First, it is measuring the longevity of use of tools and strategies and this does not specify explicitly that TDR support has ended. Second, the indicator is quite limited in that it focuses on sustained use of TDR-supported public health tools and strategies and does not cover other areas of TDR's work that might contribute to sustainability, for example building of capacity and networks. This is potentially at odds with how TDR describes sustainability in both its strategy and theory of change.

165. One underlying challenge is that TDR does not explicitly articulate a sustainability model. While its strategy and theory of change could be taken as implying that TDR promotes sustainability mainly by contributing to strengthening core implementation research capacity of public health actors in low-

and middle-income countries through a wide range of partnerships, the performance framework appears to envisage sustainability as continued use of TDR products.

166. In terms of ensuring long-term use of TDR-supported tools, including courses, the ability to do this could imply the value-added of these as others are willing to fund and implement them. Not only does this approach offer the potential of ensuring sustainability but it potentially allows the scale of these activities to be expanded. One example of this has been the franchising of the SORT IT approach so that, in a positive sense, it "*gets a life of its own.*" SORT IT courses have been developed with different partners, including the International Union Against Tuberculosis and Lung Disease ("*the Union*") on the TB course. Dr Ajay Kumar, Director of the Department of Research at The Union, considered in an interview published on TDR's website [57], "*this has been a hugely productive model, with several alumni now leading these courses in their countries. This augurs well for the sustainability of the model.*" Examples of SORT IT alumni doing this include the establishment of operational research hubs in Armenia and Ukraine for the benefit of countries in Eastern Europe and Central Asia.

167. Building sustainable implementation research capacity across a range of actors in low- and middle-income countries has been a central aspect of TDR's approach to sustainability. This should contribute to ensuring that the benefits of TDR's work are sustained. It also potentially allows for the benefits of TDR's work to be experienced at a greater scale and for ensuring that activities are fully relevant to local priorities. Elements of this research capacity strengthening that may contribute to sustainability include:

- Research training activities for individuals through various programmes, including SORT IT, CRDF and PGTS. This aims to increase the number of researchers in low- and middle-income countries able to apply an implementation research approach. Many external respondents highlighted the training activities as a key value-added of TDR, in terms of sustainably strengthening research capacity in low- and middle-income countries. One respondent noted, *"I highly value TDR, it helps build human resources which is crucial for LMIC and promotes sustainability."* Data reported by SORT IT is said to show that, of 694 participants, 575 (83%) responded to an online survey. Of those, 285 (50%) had completed at least one research project after the SORT IT course.
- TDR training activities are distinctive in that they engage with individual students through their home institution, whether academic, public health policy, programmes or research institutions. The fact that trainees apply through an institution in a low- or middle-income country, rather than directly to TDR, is expected to help align the support to the research interests of the country.
- Many TDR training activities have included "*impact*", "*re-entry*" or "*return*" grants which provide funding to those completing particular training to carry out a piece of implementation research based on what they have learned. These grants are considered to be a distinctive feature of TDR's training programme. Several grantees consider that these have been an effective way to avoid brain-drain and support researchers to pursue their careers in their own countries. Many respondents noted with regret that this support is no longer available.
- Plans within the TDR Global strategy [58] to emphasize mentoring. Potentially, these could help sustain the benefits of TDR training by ensuring ongoing support to alumni in their career. However, this approach is not yet fully operational. TDR is currently working with its RTCs on a crowdsourcing project to identify innovative ways to promote mentoring and to maximise the role of TDR Global in sustaining the benefits of TDR training.
- Activities that go beyond the training of individuals. For example, TDR has focused on strengthening teaching institutions in low- and middle-income countries as a way to sustain implementation research capacity strengthening efforts. A key approach for this has been the development of RTCs, located across different WHO regions. RTCs implement a package of

TDR courses, such as the MOOC and use the implementation research toolkit and other material, across their training programmes. TDR has worked to build the capacity and sustainability of the RTC network, by promoting communication and exchanges between the centres, and using those centres as a platform for global engagement activities such as the crowdsourcing initiative on mentorship. A respondent from one of the RTCs described how TDR's work has been sustained and expanded by the centre mobilising other sources of funding, *"we don't rely fully on TDR, we use it as leverage. We get funding for four trainings, we fund sixteen more from other sources. TDR is a big factor in that, the brand helps people to believe in the value of our training."*

- TDR's cascade model of training which seeks to work through the RTCs to institutionalize implementation research modules and courses in universities in the regions, thereby multiplying the number of postgraduate students able to apply an implementation research approach.

168. Another key aspect of contributing to sustainability through research capacity strengthening beyond training has been the establishment and support of research networks. Such research networks are considered crucial to promote collaboration between researchers and to multiply the value of individual research projects. They also promote the use of research findings by policy makers by ensuring that learning and successful approaches are disseminated in "*South-to-South*" exchanges. Examples of such networks supported by TDR include:

    - The Social Innovation in Health Initiative (SIHI). There are currently 13 SIHI hubs that have constituted a movement with a secretariat independent from TDR in the Philippines since 2020. Sustainability of the SIHI network is considered to come from the relevance of research to local research needs and responding to the requests of policy makers. This is based on the principle that locally-driven research agendas are key to ensuring sustainability, as local actors would then be willing to engage resources to support the networks and to implement their research findings. A TDR respondent described the link between relevance and sustained funding, *"we are making a movement that is really starting to bear fruits, countries and donors believe in it. There is additional earmarked support from SIDA for SIHI. Fondation Merieux, UNU, UNAIDS are doing the same thing and the WHO innovation hub has integrated SIHI in their agenda. It is a success, SIHI is valued and matters. If tomorrow TDR stopped working on SIHI there would still be hubs continuing."*
    - The WARN-TB and CARN-TB networks. These are another important example of how TDR has supported research networks to foster country-driven implementation research agendas. This is considered to contribute to the wider capacity strengthening approach of TDR beyond supporting training programmes and institutions. This networking approach is considered to contribute to sustainability as networks are able to engage on different topics where they can add value, regardless of the original focus. The report on WARN-TB/CARN-TB networks to the IMP SWG in 2018 notes that, "*while TB is the initial focus, it is also seen the entry point for the long-term plan of bridging OR/IR and health systems. To that effect, we have already started building the foundations for working with other control programmes such as malaria, arboviral disease control, HIV/AIDS and non-communicable diseases (diabetes).*" [39]

169. TDR's approach to sustainability appears to go beyond strategies to sustain the use of TDR products and tools. Indeed, it can be argued that TDR's focus on supporting implementation research core capacity in low- and middle-income countries demonstrates an understanding of sustainability as supporting the resilience of research systems in those countries. However, this implied aspect is not captured in the narrow way in which sustainability is described and measured in the performance framework.

170. Another contribution to sustainability is that TDR has made efforts to ensure that its tools are simple to use and can be adapted to different contexts, even beyond a thematic focus on "*tropical diseases*" or infectious diseases more broadly. For example, the implementation research toolkit developed with the support of the ADP, focuses on basic competencies for implementing a protocol for implementation research regardless of the topic. The SORT IT course is based on thematic calls, such as antimicrobial resistance in 2020. Students are led through the process of publishing a paper relating to the topic of the course. Beyond their research contribution, these publications can be seen as a way of demonstrating the skills learned through the course which can then be applied in different contexts. One evidence of this was the number of SORT IT alumni responding to a survey on COVID-19 who reported that they were working on COVID-19 and had been able to effectively apply, or "*pivot*", their skills in the context of the pandemic response (see p74). The same is also true for PGTS and CRDF alumni.

171. A key bottleneck to sustained research capacity in low- and middle-income countries relates to funding available to support research. Although some donors have sometimes invested substantially in research during infectious diseases outbreaks, funding has often been characterised by a "*stop and go*" approach. Funding has largely been disease-specific without a long-term strategy to support core research capacity in country. Research has also been hard to fund through domestic funding, as it tends to be behind other priorities in resource-constrained settings. TDR is the Secretariat of ESSENCE, a platform that "*is guided by the principle that good health is an essential foundation for social and economic development and that the attainment of self-reliance in research and development in low- and middle-income countries is key to sustainability."* [59] ESSENCE seeks to rationalize funders' efforts on health research financing and to improve core capacities of research systems in low- and middle-income countries to ensure that research systems are able to respond effectively to emergencies. Respondents who commented on it perceived this initiative to be a unique forum for donors and as contributing to a sustainability strategy for research in low- and middle-income countries.

172. One respondent identified this lack of funding for research in low- and middle-income countries as the main challenge and bottleneck they face. They commented, "*TDR could really have an impact in supporting grant administration so (research institutions) can apply and help write applications. When they go back the fellows have some 'return money', which is usually spent on doing a workshop to share learning in country. This money would be better spent to write applications and apply for more money. That teaches you to write and manage your own grant. The impact of that could be so much greater for future sustainability.*"

173. It is not feasible for TDR to address all bottlenecks to implementation research capacity in low- and middle-income countries but there may be a role for the programme to encourage its co-sponsors and other well-placed institutions to address these issues and this, in turn, could contribute to the sustainability of TDR's outcomes.

174. There are also issues about the sustainability of TDR as an organization or programme and its funding and governance models are important in that regard. This section briefly considers those aspects. These are important not only to the organization/programme itself but also to the realization of its mission.

175. TDR's relatively long history since its creation in 1975 is perhaps evidence of potential sustainability. TDR's experience, reputation and ability to pursue long-term objectives are all assets in terms of sustainability.

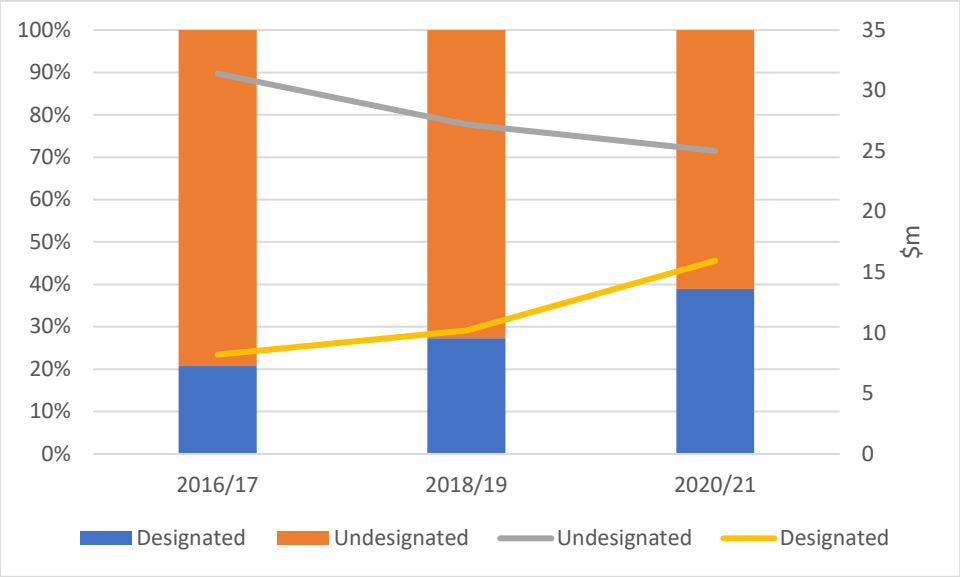
176. The current staffing structure of TDR has been described as "*lean*" by several external respondents. This is based on decisions taken through TDR's governance structure that the programme does not increase its staffing numbers beyond an agreed level. One argument for this is to avoid issues that

occurred in the past where staff numbers mushroomed and could not be sustained from core resources. It is also in line with WHO's current drive to reduce staff numbers in its headquarters. However, while this management approach is considered key to the viability and sustainability of TDR as an organization, it is in tension with demands to fulfil ambitious strategic objectives. This has placed pressure on the secretariat staff's workload who feel that what they are being asked to do often exceeds their capacity to deliver. This concern was not only raised with the review team by staff, but also by JCB members and partners concerned about the sustainability of a model which might place excessive demands on staff. Specifically, in relation to the ESSENCE platform and in line with a previous evaluation of the mechanism [52] and findings of the sixth review, respondents have raised concerns that the platform's governance needs to be better resourced in order to be sustainable.

177. There are a number of issues related to TDR's funding situation which affects its potential sustainability and these are briefly considered here:

- TDR has been fortunate to receive most of its funding as undesignated and many of its key funders have been engaged with TDR over a long period. This gives a degree of financial security and has allowed TDR to focus on specific thematic areas regardless of shifting donor priorities. One example of this was, in the face of the COVID-19 pandemic, TDR was not obliged to shift all its work to focus on COVID-19 but was able to maintain focus on its core priority areas. This continuity in strategic priorities has been highlighted by many external respondents as a distinctive and valuable feature of TDR. However, the proportion of TDR's funding as undesignated has reduced over time from 79% in 2016-17 to 73% in 2018-19 and 61% in 2020-21. In addition, the bulk of this undesignated funding comes from a relatively small number of funders. For example, in 2020-21, 85% of TDR's undesignated funding came from five funders, Sweden, the UK, Switzerland, Germany and Luxembourg.

Figure 20: Proportion and level of TDR's funding as undesignated and designated: 2016/17 to 2020/21



- Although many of the funders have had long-term engagement with TDR, funding is often provided on a relatively short-term basis, typically for one or two years, and is subject to unexpected fluctuations and variations. This can make long-term planning difficult and can influence programme choice. For example, one factor in TDR discontinuing support to PhDs was the fact that a PhD may take three to four years to complete yet most of TDR's funding is only available for a one or two-year period. This creates risks for both students and TDR if funding is discontinued in the middle of their training. Another example is the Fellowship Scheme, which is funded mostly by the Gates Foundation. One TDR respondent noted that the

programme had had periods of insecurity, because it is funded on a short-term, project basis, "*we develop a whole training programme on the assumption that the TDR fellowship will continue, but the uncertainty of funding means that there is less incentive to do that. We want to see Gates give us a commitment on 5 years with clear objectives to achieve, so that it is sustainable and we can be more enthusiastic in investing our time in this.*" It is worth noting that one of TDR's KPIs is the proportion of funding available on an unconditional, multi-year basis. The target of 70% appears to be extremely unlikely to be met unless there is a major change in donor funding practices as, in 2019, when the last report was made, only 1% of TDR's funding was received in this way.

178. TDR's governance structure contributes to organizational and programmatic sustainability in a number of ways.

- Members of the JCB contribute to the profile and communication on TDR, ensuring that its contribution and relevance are highlighted to donors.

- JCB members also ensure the good governance of the programme by providing external, independent oversight of strategic decisions.

- The STAC structure plays a key role in ensuring that TDR's programmes follow a project cycle logic, whereby an exit strategy is built into the programme and the achievement of objectives is monitored. One respondent noted, "*there is a tendency for people to want to carry on doing what they are doing. We ask teams when they take on a new area to justify how it fits with the forward vision, and think in advance about the duration and the exit strategy. TDR cannot be the long-term provider for some programmes. There has been a reluctance to think about milestones to hand over programmes. That has been harder to enact. So some areas of work disappear because there is no more money, but there have been no thought over the exit strategy either. Programmes should either finish because the work is done, or be taken on by governments and other players. TDR picks areas, pushes them forward and hands them over."* This exit strategy has been demonstrated in different strands of work in TDR, as illustrated above by franchising and handing over training activities to institutions in low- and middle-income countries.

179. In order to improve the sustainability of TDR's contribution it may be necessary to consider broader barriers to sustaining research capacity in low- and middle-income countries. This may include the relative priority placed on research by decision makers and the extent to which a stable political environment exists. Global engagement activities, such as the ESSENCE platform, seek to address funding-related bottlenecks.

Quality of science

180. In TDR's current performance framework [11], as in the previous one, quality is recognized as one of TDR's core values and is defined as *"the extent to which TDR outputs are recognized as being of good quality and in line with international standards."* WHO's Research Strategy [60] also includes quality as a guiding principle and defines it as *"research that is ethical, expertly reviewed, efficient, effective, accessible to all, and carefully monitored and evaluated."* It is noteworthy that the new WHO Department on Quality Assurance for Norms and Standards within the Science Division also provides a framework to which TDR may need to refer to frame its approach to quality of science.

181. Over the past two decades, TDR-supported research has shifted from direct product R&D for tropical diseases to facilitating and supporting implementation research through a wide range of academic and non-academic researchers in low- and middle-income countries. This evolution has implications

for the way quality of science is framed in the programme. A TDR respondent highlighted that quality of research goes beyond academic excellence and publishing in high-impact factor journals. While those aspects remain important, the fact that TDR-supported research has moved closer to implementation has new implications related to quality of science. Any poor-quality research could find its way directly into practice, meaning that the consequences may be more immediate than in the case of clinical or fundamental research.

182. The sixth review [1] highlighted the need to articulate a comprehensive conceptual framework for quality of science in TDR. The review stated, "*it is important for TDR to be specific as to what it means by good quality research. This should include making a difference in policy and practice."*

183. TDR's strategy [2] and performance framework [11] describe how quality of science is currently framed in TDR. In addition to methodological soundness, several aspects are considered including:

- Utilization - TDR's current strategy highlights the importance of quality of science in relation to the usefulness of products, *"we will target our work across this broader public health space, to make sure that high quality research is conducted at each stage, with the people who can transform this knowledge into lasting change."* The performance framework's first indicator also relates to the utilization of TDR-supported science, namely "*number and evidence when innovative knowledge or new/improved solutions/tools developed with TDR support are applied in disease-endemic countries.*

- Relevance - TDR's prioritization process [61] is intended to ensure that the science supported by TDR responds to the needs of those affected by diseases of poverty in disease-endemic countries. This approach to prioritization is summarized in the strategy, "*TDR draws on many external sources to make sure its work targets global public health needs. The priorities of WHO disease programmes, the output of global health observatories, and close engagement with a wide variety of disease-control communities of practice, all help to inform our secretariat and scientific committees."* This aims to ensure that TDR-supported research focuses on areas where the programme can add the most value.

- External oversight - TDR's independent scientific committees provide external evaluation of the quality of TDR's work, as captured by the indicator *"proportion of project reports evaluated as satisfactory by external advisory committees."*

- Accessibility of data – Reflecting the definition of quality in WHO's Research Strategy, TDR's performance framework includes an indicator on open/accessible science, *"number of research data sets/platforms that are i) open access or ii) with an access permission level"*

184. Overall, internal and external respondents consider that TDR-supported science is of good quality and that there are strong quality assurance systems in place. One TDR respondent summed up the general perception of quality of TDR-supported science, "*we do the best we can, I am not sure that we could do much better.*"

185. In terms of quality assurance systems and processes in TDR, perhaps the most prominent are the peer review mechanisms that are in place in relation to publication of research. It is considered that this helps ensure that a scientifically-sound methodology underpins research design and analysis.

186. In addition, TDR's quality assurance systems include a series of standard operating procedures (SOPs), such as checklists and forms to manage clinical laboratory audits, clinical data and statistics audits. These procedures were developed between 2009 and 2010 when TDR was involved in directly managing clinical research projects and are more relevant to that approach than to how TDR currently works.

187. With the current focus on facilitation of implementation research by others and capacity strengthening, other dimensions of quality have assumed greater prominence, beyond compliance with clinical research processes, such as relevance, timeliness, usefulness, accessibility and ethical aspects. These are covered by the external oversight system of TDR, consisting of the STAC and the SWGs. The current performance framework emphasizes that these mechanisms are the backbone of TDR's quality of science assurance system, *"the governance structure and peer review processes through the external advisory committees and working groups greatly facilitate quality assurance and performance improvement. Recommendations are carefully analysed and addressed."* According to their terms of reference [62], STAC's role is to provide external scientific and technical input in the planning, prioritization and review of TDR's activities while the SWGs are responsible for giving advice to TDR on specific areas of TDR's workplan, and for providing an independent assessment of projects and initiatives. While SWGs are not a formal governance mechanism, in the same way as the STAC is, they are able to provide a more detailed review of TDR's work to guide the STAC and the secretariat's strategic decision making. A committee member has described their role as a *"critical friend".* Indeed, several respondents have identified that a key value-added of these committees has been to steer TDR's work to areas of higher impact and to question the relevance of ongoing projects, to inform the JCB's strategic decisions. One committee member commented, "*having a system of external quality assurance helps so that there is no inertia of the programme managers to decide what they work on. Committees that review proposals are external. We do a first screening for those that are relevant for the call, and then the external partners decide what projects TDR funds."*

188. Over time, some improvements have been made to ensure that these committees could better fulfil their roles. In order to facilitate coordination between STAC and the SWGs, the chairs of SWGs are selected from among STAC members and provide updates on the work of their SWG at the STAC meeting. SOPs have been developed for SWGs [63] to guide their functioning and composition, and a matrix of SWG members' expertise and experience has been created to ensure that SWG members' expertise and competence covers all key areas relevant to TDR's work.

189. However, some external respondents report that these committees have limited capacity to offer sufficient oversight of TDR's technical work. While respondents value the profile of members and recognize that these are experts in their field, participation is voluntary and the groups only meet once a year and these factors are seen as limitations to the level of scrutiny that can be provided. One respondent commented, "*people on the SWG and STAC have a day job, and it is hard to devote time to read a lot of material that comes out of TDR."* A mitigation measure was adopted whereby group members share the documents to review between themselves according to their area of expertise. Again, a respondent noted, *"we have refined our review methodology. Before, everyone had to comment and read everything but that was not realistic. So chairs have prioritized where to give direction, and parcel out work to specific individuals to focus on, so that operating model for the review team has been useful."* Despite these improvements, an external stakeholder commented that TDR may benefit from added support by external experts in the context of a reduced technical team, suggesting the creation of thematic steering committees that could offer their expertise on an *ad hoc* basis. The respondent emphasized that given TDR's history and profile *"people are very willing to help*".

190. While the two SWGs have started reviewing the global engagement work of TDR jointly, [64] several TDR respondents commented that work on global engagement activities by SWGs is insufficient. Certainly, this scrutiny seems less intensive than in other areas of TDR's work. For example, the SWGs are not yet generating detailed recommendations for TDR's global engagement work in the same way that they do for IMP and RCS. This may be, in part, because the system of reviewing global engagement work is relatively new but it may also be because these SWGs lack the capacity to take on this additional role fully.

191. Other mechanisms that ensure quality of science, according to a TDR respondent, include working through local institutions and researchers, which ensures contextual relevance of research, conducting ethics reviews and discussing the progress and interpretation of data in TDR technical teams. In this respect, several internal respondents considered that having more time dedicated to regular technical discussions within and among technical teams would enhance the quality and coherence of TDR's work.

192. Beyond ensuring the quality of the research it supports directly, TDR aims to promote the generation and use of quality science by other actors. Respondents consider that TDR has been effective in promoting good quality science through its research capacity strengthening activities. The SORT IT programme, for example, strengthens the skills of public health professionals to conduct a scientific research process, validated by a publication in a peer-reviewed journal. A recent study published in Tropical Medicine and Infectious Disease [47] analysed 392 publications in 50 journals from the SORT IT programme. It concluded that almost nine out of ten publications were graded as being of excellent reporting quality according to the Structured Reporting of Observational Studies in Epidemiology (STROBE) checklist. TDR respondents working on SORT IT reported that a further evaluation will be conducted using STROBE and this will assess whether there has been any "*quality creep*" as a result of franchising. This will be used to assess how well the franchising model is working.

193. Some respondents considered that there may be a tension between the focus on quality of science, as validated by publication in a peer-reviewed journal, and ensuring that research is useful in the local context, for example, for decision-making and/or for building the skills of a wide range of professionals to conduct quality research in policy, clinical or pharmaceutical sectors. A STAC respondent considered that, *"TDR's aim is to develop quality of science, but also you want to develop capacity. So you have to balance support between excellence and capacity to do excellent science."* Most respondents that commented on this issue considered that both aspects were complementary and that TDR's quality of science assurance systems should include all aspects of research, from scientific production to capacity building to conducting implementation research in different settings.

194. The distinction between quality assurance of TDR-supported research and of the research produced by partner institutions is not clear-cut. Respondents held different views regarding where TDR should draw the line in terms of its responsibility for quality assurance when it comes to research generated by partner institutions. The current model of quality assurance mainly focuses on TDR's project outputs, which corresponds to the previous model of TDR commissioning and conducting research directly. It does not systematically encompass the monitoring of the science produced by partner institutions and individuals trained, which is where most of TDR's current efforts are directed. TDR respondents considered that this was taken into account to varying degrees depending on the local institution, and that the COVID-19 travel restrictions had made quality monitoring in partner organizations more complex. The IMP SWG in 2021 recommended to pay attention to maintaining the quality of SORT IT training when transferring the course to other institutions, stating **"***recommendation: to continue already existing partnerships with franchising for expansion (if more funding available) while ensuring TDR niche and quality standards."* While this may be seen as implicitly affirming TDR's role in following up on quality assurance of the products once they are taken over, an alternative view might be that TDR has responsibility to ensure partners have adequate quality assurance systems in place and this could involve sampling individual research products but it is likely to be impractical and inadvisable for TDR to try to retain responsibility for quality assurance of all partner research products.

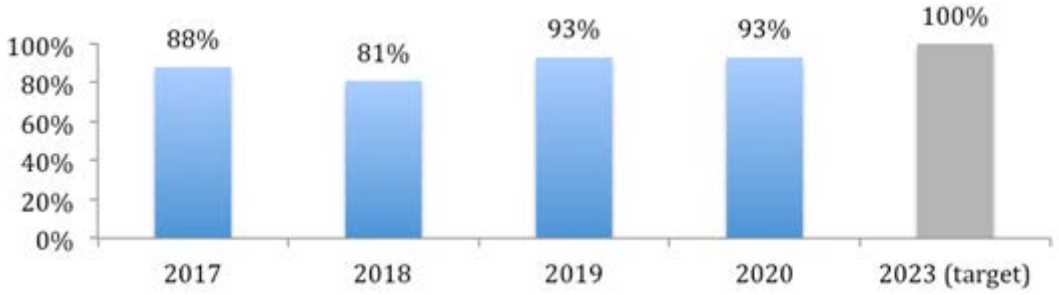
195. In relation to ensuring that TDR-supported research is ethical, the sixth review highlighted the issue of the ability of young researchers to produce high quality proposals that can meet the specific ethical requirements of implementation research. In response to this need, in 2019, TDR launched the course "*Ensuring Ethical Conduct of Implementation Research*" [65] together with the WHO Global Health Ethics team. Supporting implementation research projects, especially when engaging local

communities in research, as in the case of SIHI, also requires specific ethical considerations beyond the standard validation by ethics committees of both WHO and countries where the research is conducted.

196. TDR's role in promoting the generation and use of implementation research in low- and middle-income countries has led TDR to have an increased focus on fair access to data as part of producing quality science. Since 2010, TDR has put in place an Open Access Policy. The Programme is also part of Plan S [66], an agreement between donors and journals on copyright to ensure free and open access to science. The promotion of open access is based on the premise that free access to data is a necessary condition for the scientific process to take place through scrutiny of results by peers. Moreover, open access supports advances in science as new findings build on previous research. This is particularly important for researchers in low- and middle-income countries that may face financial or institutional barriers to accessing published papers.

197. For the research it supports, TDR supports the author(s) to publish open/free access papers. It tracks the proportion of open/free publications as a KPI , "*number of research data sets/platforms that are i) open access or ii) with an access permission level."* TDR has made progress towards achieving the 2023 target of 100% open/free access publications, increasing from 88% in 2017 to 93% in both 2019 and 2020 (see Figure 21).

Figure 21: Percentage of TDR-supported publications published as open/free access: 2017 to 2020

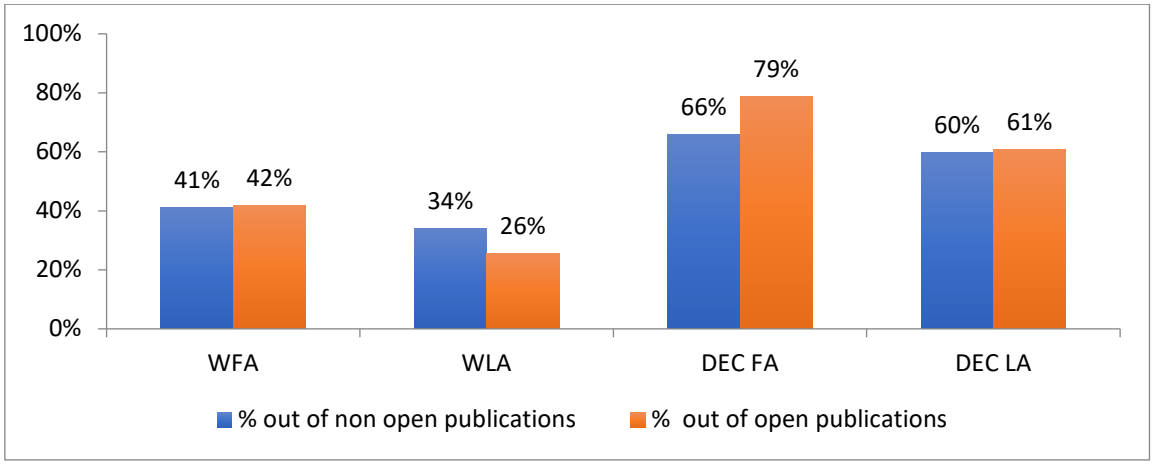


198. However, there are still a number of papers being published in a way that does not provide open or free access and this will need to be addressed if the 2023 target is to be achieved. TDR's 2020 results report [17] states that most of the non-open publications come from first and last authors based in disease-endemic countries and suggests that this may be due to financial barriers to publishing in an open access modality noting, "*if we are to achieve 100% open/free publications, some obstacles need to be dealt with. A quick analysis shows that almost all non-open publications are from DEC authors, which may mean that there is a financial barrier in having their publications published in open access. An in-depth analysis is needed to identify incentives and means to support open/free access publications in such cases."*

199. However, it is possible that this analysis is flawed as the vast majority of all TDR-supported publications have a first and last author from a disease-endemic country. The key issue is whether this proportion varies between open and non-open publications. This review analysed details of 97 non-open publications between 2017 and 2021. Of these, a lower proportion (64 of 97, 66%) had a first author from a disease-endemic country as opposed to (592 of 752, 79%) in open access publications (see Figure 22). This finding potentially contradicts TDR's analysis as it may show that first authors from high-income countries are more likely to publish in non-open access publications than first authors from DECs. There was no difference between the proportion of publications with a last author from a disease-endemic country among non-open and open publications (58 of 97, 60% and 458 of 752, 61% respectively). Figure 22 also shows similar analysis for female authors and this

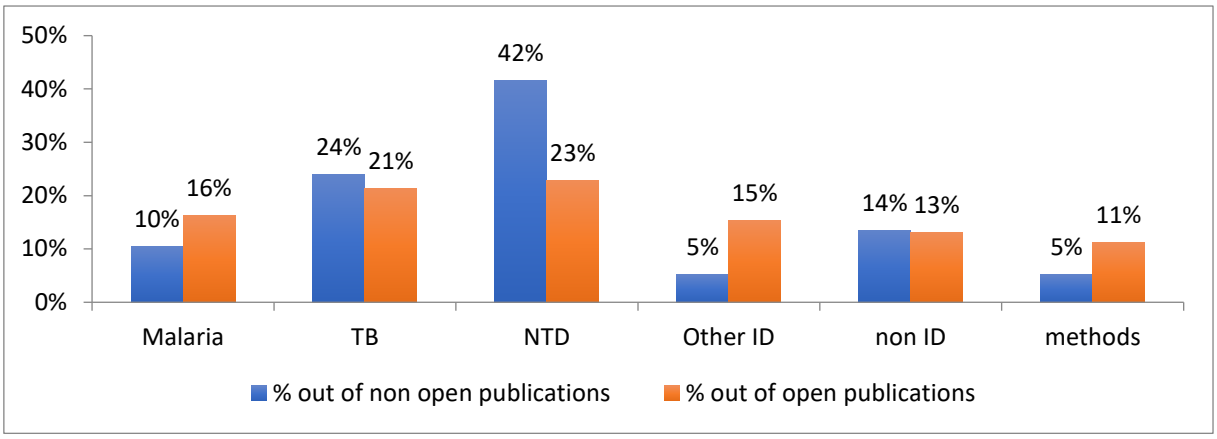
shows a higher proportion of female last authors in non-open publications than in open publications (33 of 97, 34% and 193 of 752, 26% respectively).

Figure 22: Proportion of women and authors from disease-endemic countries as first and last author in non-open and open publications in TDR-supported publications: 2017 to 2020



200. Figure 23 presents a similar analysis by thematic focus of publications. This shows that, over the period 2017-2020, there is a greater proportion of non-open publications relating to NTDs compared to open publications, while there was a higher proportion of open publications, as compared to non-open, for publications on other infectious diseases and methods.

Figure 23: Proportion of open and non-open publications across particular main topics: 2017 to 2020



201. These findings show that further analysis and discussion is needed to better understand reasons why some publications continue to be in non-open formats and whether there are particular barriers involved. For example, the question arises as to whether there is a reason why publications on NTDs might be more likely to be non-open access than publications on other topics. One option might be to reach out to authors of non-open access publications to understand why they were published in this way and what prevented them from publishing in an open format.

202. Some concerns have been raised as to whether TDR is doing enough to ensure data sharing is a core component of all its projects. For example, in 2021, the IMP SWG questioned whether TDR-supported research is doing enough on promoting availability of data on global health issues such as AMR, *"the AMR SORT IT focus includes increasing the availability of relevant high-quality, timely and disaggregated data but this seems to be limited to individual country needs. Should data sharing not be a core component of all projects, given that antimicrobial resistance is not limited within country borders and impact of research is increased by sharing of individual participant data?"* TDR's

involvement in the topics of fair data and data sharing goes beyond the publications that it supports. TDR is also promoting this agenda through the ESSENCE platform and there may be the possibility to reflect on opportunities for better integration between TDR's different strands of work, for example, utilizing the SORT IT course to support the objectives of the ESSENCE initiative on improving data sharing in a way that is accessible and useful to researchers in low- and middle-income countries.

Crosscutting issues

Gender and intersectionality

203. TDR has a framework for the integration of gender and equity into its work through the Intersectional Gender Research Strategy [67] adopted in 2020. Consequently, TDR can be seen as a pioneer within WHO in terms of mainstreaming gender and other vulnerability factors into health research. Few technical programmes in WHO have developed specific strategies to mainstream gender. TDR seems to be one of the first programmes to integrate the intersectional dimension alongside gender considerations. [68] One TDR grantee that was involved in the development of the strategy considered that, while gender issues had been integrated in TDR's work for a long time, overlaying an intersectional lens constituted an innovative approach. The strategy aims at strengthening TDR's research programmes to address gender equality issues and emphasizes gender as an entry point into a deeper intersectional analysis. There is a clear alignment between TDR's general theory of change and the inclusion of a vulnerability analysis including gender and other factors. TDR's approach to gender and intersectionality mainstreaming goes beyond disaggregating data by sex, age and other vulnerability factors to analysing the differential impact of gender and other social determinants on health outcomes in order to inform intervention design.

204. Several respondents from TDR's funders highlighted the value-added of TDR in the area of gender mainstreaming commenting, "*they specifically mention research on gender in infectious diseases research, they try to evaluate how infectious diseases impact women differently, and incorporate gender lens in their work.*" It is however noteworthy that several external respondents were not aware of TDR's work in this area, or considered that it was linked to specific donors' interests. A JCB respondent considered that TDR had untapped opportunities to further promote gender transformative approaches in health research, in particular through joint work with co-sponsors to support a multisectoral approach to interconnected vulnerability factors.

205. Regarding gender and equity in TDR's structures and activities, TDR's performance framework includes a series of output indicators relating to equity and gender in the internal structure and activities of TDR, tracking parity and gender representation in TDR's grantees, external advisory committees and publications.

206. In terms of internal gender and geographical equity, TDR has exceeded its targets for representation of women and disease-endemic countries on its advisory committees (indicators 11 and 15). In terms of the proportion of experts from disease-endemic countries on TDR external advisory committees, the target of over 60% was exceeded at the time of baseline. However, the target is appropriate to ensure that there is no fall back from this achievement. While the proportion has reduced slightly, it remains above the target. In terms of the proportion of women on TDR external advisory committees, the target of 50% was achieved at the time of baseline and has increased to 60%. This is a marked improvement over the situation in 2012 when the proportion of women stood at only 28%. [20] Discussion with TDR management confirmed that this indicator is intended to measure gender balance. In this case, it may be better to set an acceptable range for the indicator (e.g. 50-60% or 50-70%) rather than a single number which could indicate that any number above that level is acceptable.

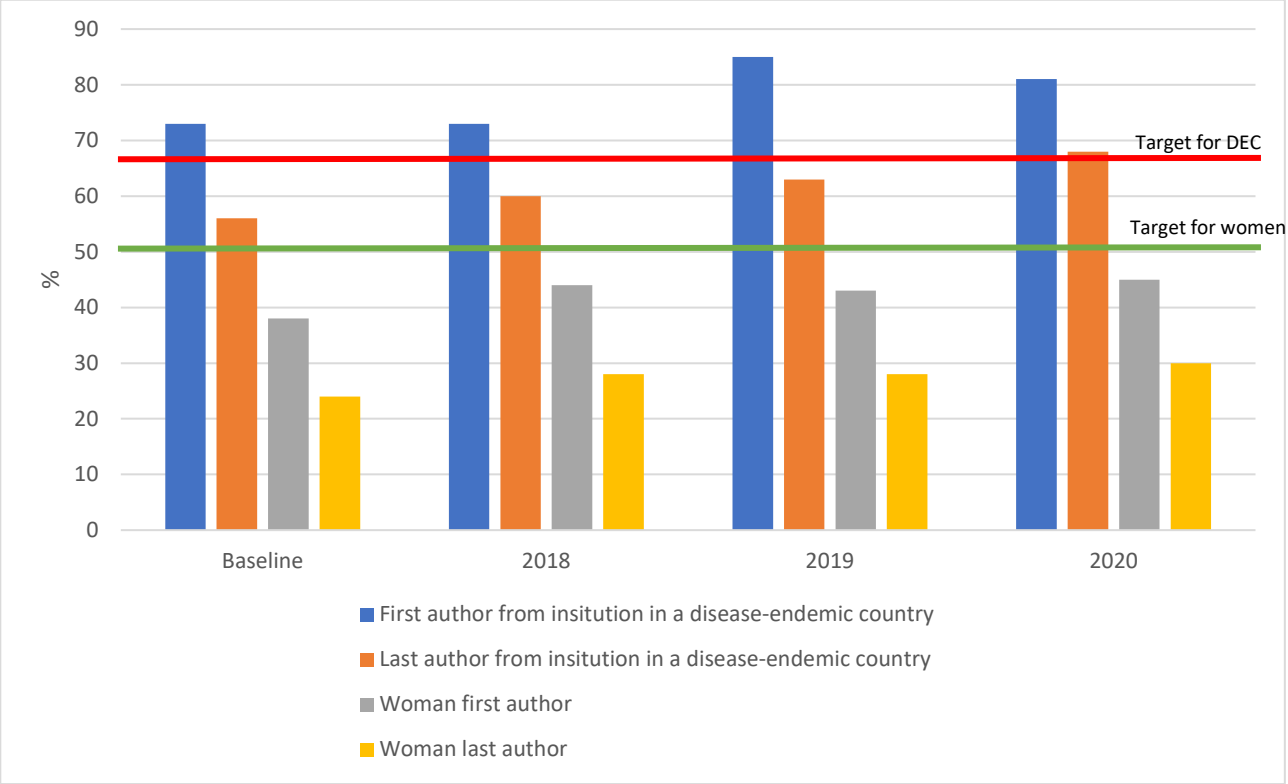
207. Although the representation of disease-endemic countries and women in TDR advisory committees as a whole is tracked in TDR's performance framework, this is not disaggregated for specific committees as an indicator in the framework. Considering the JCB specifically, only just over a quarter of its members (5 of 19, 26%) are women and representatives from disease-endemic countries only make up just over one third (7 of 19, 33%) of its members. The TDR Secretariat report that it is beyond their control to address this matter as selection of JCB participants is not decided by them.

208. In addition, the gender and geographical balance among TDR's staff is not tracked in the performance framework. However, these details are available and are analysed elsewhere in this report (see paragraphs 117-122 and Figures 12-16, pp37-40). Although the majority of TDR's staff (19 of 30, 63%) are women, this is skewed by the high number of women in administrative positions. Issues remain in terms of women's relatively low position in terms of grades and involvement in management. Geographical representation among TDR staff is imbalanced with 70% (21 of 30) from high-income countries and 83% (25 of 30) from countries that are considered to be over-represented within WHO staff. This issue is related to similar issues within WHO, as a whole, and within its headquarters in particular. TDR management report they are aware of the issue and are seeking to address it. However, constraints they face include low staff turnover and WHO personnel appointment procedures.

209. In terms of geographical representation in activities, the proportion of TDR grants and contracts awarded to institutions or individuals in disease-endemic countries (indicator 10) has shown relatively little change. In order to meet the 75% target, additional efforts are likely to be needed. In terms of the proportion of TDR grants and contracts going to women (indicator 14), there has been substantial improvement over baseline but initial progress may have stalled although both the proportion of the amount and number of contracts/grants going to women are quite close to the target of 50%. In 2018, the report to the JCB [69] noted that TDR had scored well on indicators of socioeconomic and gender equity and this was one of the indicators highlighted.

210. TDR has reached or exceeded its targets on the authorship of publications in relation to first and last authors from disease-endemic countries (indicator 12) (81% and 68% respectively in 2020 against a target of 67%). While initial progress was made from baseline to 2018 in terms of increasing the proportion of women first authors (indicator 16) (38% to 44%), relatively little progress has been made since (45% in 2020). Nevertheless, it may still be possible to reach the target of 50% by 2023. The proportion of women as last author started at a much lower baseline (24%) and despite some progress (30% by 2020), current rate of progress would not be sufficient to meet the 2023 target of 50%. These figures are illustrated in Figure 24.

Figure 24: Proportion of publications supported by TDR meeting criteria in terms of first and last author: Baseline to 2020



211. To make progress in terms of women's participation in research, both as TDR grantees and in publications, TDR has put in place innovative approaches to lift barriers to women's participation. In particular, a crowdsourcing contest was launched, under the global engagement stream, through TDR's regional hubs to identify ways of encouraging women to participate in science. As a result, TDR has been able to identify gender-related inequalities that influence women's participation in the CRDF scheme. For example, the 2019 annual report [19] quoted a CRDF participant saying, "a*s a family woman, leaving my husband and children behind for one year was the most difficult thing for me and for them. Of course, I got the chance to return home for a visit once, and they also came over to visit during the summer, which made it easier for us. Nonetheless, the knowledge and experience I have gained from this fellowship makes all of this well worth it.*" These efforts have led to an increase in the number of women applicants. The 2020 annual report [20] noted that *"following efforts in 2019 to encourage applications from women, the percentage of women selected increased from 23% in the previous calls (2007 to 2019) to 58.5% in the latest call (2019 and 2020)."*

212. In relation to improving geographical representation in TDR's activities, the issue of TDR's working languages was raised by several respondents. While some consider that TDR's working language is English and that it should not invest limited resources in translation, others commented that special efforts are needed to offer materials in languages other than English and French. The TDR sixth review noted that "*the lack of translation at JCB meetings into languages other than French may prevent representatives from contributing*". Portuguese-speaking participants have indicated that efforts were underway to create a group of Lusophone countries at the JCB in order to increase their voice and visibility. There is a clear value-added for TDR to make training material available in different languages. For example, in 2020, 1,825 people registered for the Spanish version of the MOOC, 365 for the French and 945 for the English. [20] Nevertheless, taking into account different languages requires consideration beyond just translating tools and materials. For example, there are language implications for networking activities and the global reach of TDR. One respondent noted, *"the gap is that so far we do not have focus on Portuguese language countries, so far this has been insignificant.*

There are six countries in Africa, we should have at least one centre in Africa for these countries." However, some progress has been made. For example, WARN-TB and CARN-TB networks have sought to increase the focus on and the visibility of non-English-speaking countries in the region. One respondent noted, *"we wanted to draw attention to this region which was a little less helped, even if they are not all French-speaking. We do things in French, English and Portuguese."* Investing in the translation of material, as well as in developing connections with networks using different languages, contributes to both improving equity and increasing the reach of TDR's work globally.

213. TDR has also worked to integrate an intersectional gender lens into its programmes treating it as a crosscutting issue across the organization. Consequently, coordination between the different technical teams on gender and equity is paramount to maximizing TDR's contribution in this area. Global engagement and IMP have spearheaded the development of the Intersectional Gender Research Strategy. In line with recommended good practice [70], TDR's performance framework includes an outcome-level indicator on gender and vulnerability, "*evidence demonstrating the benefits of research on gender, on equity or on vulnerable groups, including people with disabilities, used to inform policy and/or practice."* This indicator is tracked through qualitative evidence showcasing TDR's contribution in this area. However, while the strategy lists 22 "*potential indicators*" to track changes in relation to research outputs and capacities, which could be used to monitor the strategy's successful implementation, none of these seem to be reported on currently.

214. While all technical teams integrate gender and other equity considerations in their work, it is sometimes unclear how these efforts work together to deliver the strategy. The strategy includes four objectives - build research capacities on intersectional gender analysis; generate evidence on gender intersecting inequalities in access to health services; support intersectional gender analysis in research for implementation; and promote an inclusive infectious disease research agenda. TDR has two expected results in relation to intersectional gender mainstreaming. One (1.3.12) falls under IMP and is "*strategies to promote gender-responsive health interventions on prevention and control of infectious diseases of poverty*" while, since 2021, there is a second (ER2.3.4) which falls under global engagement and is "*effective engagement in gender and equity*". RCS does not have a specific expected result in relation to this crosscutting area.

215. In addition to coordination challenges, several respondents pointed out that technical capacity on gender was still limited internally, mainly resting in one person in the Director's office. For example a TDR respondent considered that "t*eams need to include social scientists with experience and expertise on gender."* Similarly, efforts are underway to diversify the pool of experts in the advisory committees of TDR beyond biomedical profiles to include more social scientists, including with the new co-chair of the STAC.

216. Despite these limitations, TDR's work on gender has been driven throughout TDR's programmes with some notable achievements. Recent examples are presented in Box 7 structured according to the objectives of the Intersectional Gender Research Strategy.

Box 7: Highlights of TDR's successes on gender according to the objectives of the Intersectional Gender Research Strategy

Building research capacities on intersectional gender analysis – an implementation research MOOC module on gender and Intersectionality is to be launched in 2022 in collaboration with the United Nations University International Institute for Global Health. In addition, joint efforts between TDR and HRP aim to expand their collaboration on strengthening capacities to incorporate sex and gender in health research and a course on "*gender-based analysis of infectious diseases and climate change*" was approved within the public health bachelor programme of the University of the Witwatersrand in South Africa in 2020.

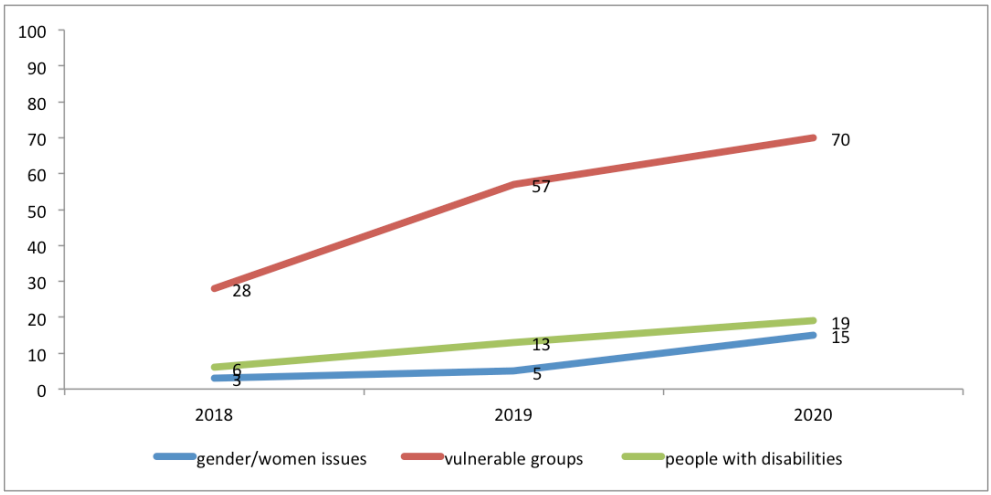
Generating evidence on gender intersecting inequalities in access to health services – in 2020, the small grants scheme started to include minimum requirements to ensure that research plans were gender sensitive and data was disaggregated, at least by age and sex. In addition, TDR is currently supporting two flagship projects, in Nepal and Uganda, exploring how gender intersects with other axes of inequality and impact on human health, and, in 2021, the SIHI network initiated a programme in five different geographical regions applying an intersectional gender lens and demonstrating how mainstreaming these issues may contribute to prevention and control of infectious diseases in low- and middle-income countries.

Supporting intersectional gender analysis in research for implementation – TDR produced a toolkit for researchers, to accompany the strategy, entitled "*Incorporating Intersectional Gender Analysis into Research on Infectious Diseases of Poverty*." [71] In addition, TDR has encouraged scientists in partner institutions to consider the intersections of gender with other social inequalities that have an impact on infectious diseases of poverty and a discussion paper was produced in the frame of the ADP on the gender dimensions of NTDs. [72]

Promoting an inclusive infectious disease research agenda – TDR Global's compendium on women in science was published in 2021 [73] and a crowdsourcing contest administered by TDR regional hubs identified innovative approaches to encourage women's participation in research, and thus contributed to TDR increasing the number of women grantees in its operations.

217. Nevertheless, there are some indications that bottlenecks remain to fully realizing the goal of the Intersectional Gender Research Strategy. Indicator 17 in the performance framework has as a target that 80% of publications should explicitly consider gender and women issues, vulnerable groups or people with disabilities by 2023. While TDR is making progress under the three areas combined, gender and women issues continue to be integrated in a small proportion of the publications (15% in 2020) (see Figure 25). This may indicate that research proposals from country stakeholders do not often prioritize gender issues. It will be important to continue monitoring this trend after 2020 to identify whether the strategy has contributed to a step change in this dynamic.

Figure 25: Percentage of peer-reviewed publications supported by TDR explicitly considering gender and women issues, vulnerable groups or people with disabilities: 2018-2020



218. There are also indications that participation of women in science beyond TDR-supported activities may not continue to be as high as for men. The SORT IT study of TDR's alumni capacity to contribute to the COVID-19 response [74] shows that there were varying results among men and women. Of all SORT IT alumni, just under half were women (371 of 895, 44%). Response rates among men and women were similar (364 of 460, 79% and 288 of 371, 78%) but the proportion of women reporting involvement in COVID-19 responses was much lower than for men (156 of 288, 54% as compared to 261 of 364, 72%). This issue is not discussed in the published article. However, based on comments from TDR staff working on SORT IT, it seems that family responsibilities, and cultural and social norms related to these, may be the main cause of these differences with women leaving their professional role or facing restrictions in the extent they can travel as a result of their responsibilities. However, more empirical evidence regarding this issue is probably needed.

219. Finally, there may be scope for TDR to integrate the perspective of marginalized groups, who have traditionally been mostly targeted by sexual, reproductive health, HIV and AIDS programmes, but whose other health needs have often been disregarded. Commercial sex workers, LGBTQI+ people and injecting drug users often face specific barriers that relate to political repression and discrimination. These issues go beyond an equity analysis and require a human rights-based approach. Integrating a gender transformative dimension to research and questioning the underlying social norms that perpetuate the marginalization of certain groups could be an area for TDR's future work on gender and other intersecting factors of vulnerability. Research integrating non-binary gender perspectives and working with marginalized groups is still largely undeveloped. One TDR respondent noted, "t*his is where TDR can make a mark and put this in the mainstream of consciousness. Countries we work with are very male dominant. In some countries it is even unlawful to discuss it. That could be the next big area, gender transformative research."*

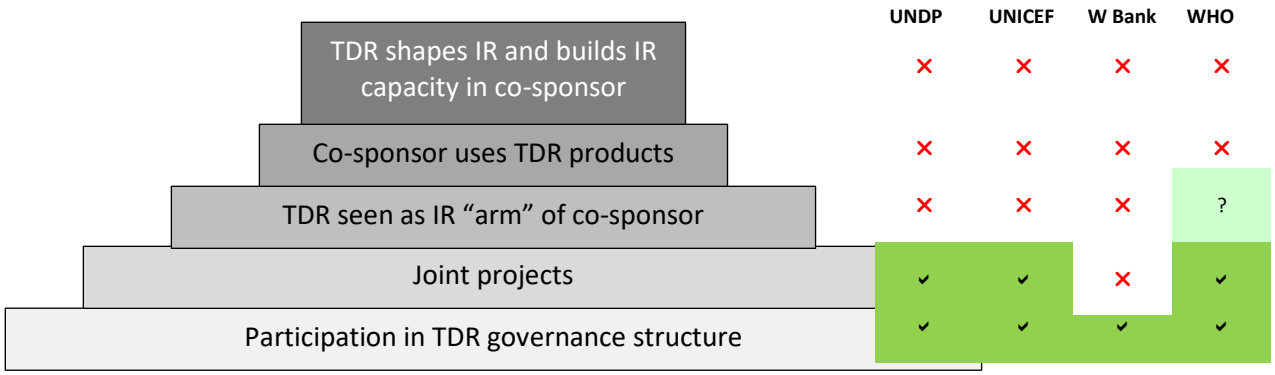
Partnerships

220. This crosscutting section pulls together the review's findings across the topic of partnerships. Many of these issues are discussed in more detail elsewhere in the report and, in those cases, the issues are just summarized here.

221. TDR's current strategy [2] includes a section on partnerships and governance. Earlier in the document, the strategy identifies TDR's "*proven partnership approach*" as a way to achieve its vision. Partnerships highlighted in the strategy include with WHO departments, research programmes and hosted partnerships in Geneva and in the six regional offices, and with other co-sponsors. The section also highlights partnerships with financial contributors and highlights TDR's nine partnership criteria.

222. TDR, as a co-sponsored programme, is essentially a partnership between four co-sponsors, UNDP, UNICEF, the World Bank and WHO. While TDR is executed by WHO, it differs from a WHO programme or department, not least in having its own governance structure. The term "*co-sponsor*" is a bit of a misnomer in that the co-sponsors do not currently provide financial support to TDR. In general, co-sponsors do not actively plan with TDR except through TDR's governance structure. There are some exceptions, for example, the Global TB Programme and TDR do develop joint plans. In the case of WHO's NTD programme, the programme and TDR set their respective priorities separately with little interaction. There are examples of joint programmes between TDR and some co-sponsors, e.g. UNDP and UNICEF but not with others, e.g. the World Bank. Given that TDR does not have in-country presence, it may be difficult for TDR to develop joint programmes with the World Bank as the Bank sees these being developed primarily at country level. All co-sponsors do actively participate in TDR's governance structure, particularly the Standing Committee and the JCB. There may be cases where TDR and co-sponsors duplicate each other's activities. There are few examples of co-sponsors using TDR's research to develop guidelines. One exception is the Global TB Programme who report that they do use TDR research to develop guidelines. Figure 26 briefly illustrates ways in which TDR and its co-sponsors may interact.

Figure 26: Ways in which TDR and its co-sponsors may interact



223. Earlier in this report (see paragraph 49, p17 and Boxes 2 and 3), the review team considered the relevance of TDR to different co-sponsors picking up an issue raised in the sixth review. In discussing this with the TDR Secretariat, they expressed the view that the issue is not really about TDR's relevance but about co-sponsors' engagement. The analysis above does support the view that co-sponsors' levels of engagement vary and may not be as substantial as might be expected from a co-sponsored programme. However, there is perhaps need to understand better what factors might limit further engagement by co-sponsors with TDR recognizing that this probably differs from one co-sponsor to another.

224. In addition, in this discussion, the TDR Secretariat also raised the issue of the co-sponsors relevance to TDR. While this may be a valid point, given the way TDR and the context has changed over time, it may be unrealistic to consider that co-sponsors may change substantially to make themselves more relevant to TDR, which is essentially one of their programmes. Nevertheless, it may be pertinent to consider whether the existing co-sponsors see enough overlap between their work and TDR's to merit continuing in the co-sponsorship role and/or whether there are other organizations that might join TDR as additional co-sponsors.

225. Among the co-sponsors, WHO has a special role as the Executing Agent of the programme. Following the establishment of a Science Division in WHO, TDR, with other research entities (HRP and AHPSR) has been located within the Science Division. While this is generally seen as a positive development, it is still a relatively new arrangement so probably too early to judge definitively. In relation to TDR, there is still a need for it to maintain links with relevant disease programmes, e.g. on TB, malaria and NTDs (see Box 2) and with WHO's regional offices (see Box 3). One of the distinctive arrangements with regard to the Science Division is that TDR's Director was also asked to take on the role of Director of one of the Science Division's three departments, Research for Health. In practice, this is a relatively new arrangement which respondents consider to be working well, not least because of the experience, skills and abilities of the current Director. Some respondents, particularly TDR staff see advantages in the arrangement in that it:

- Raises TDR's profile in the Science Division.
- Means that TDR should be aware of policies and practices of the Science Division.
- Gives the TDR Director access to the Chief Scientist.

226. Others believe that it cements the relationship between WHO and TDR but some point out that this is not in the area of TDR's main technical engagement with WHO, which is with disease programmes. Others are concerned that the shared role may give the impression that TDR is now fully part of WHO. Some respondents considered that any added value of the shared role had yet to be seen. This may be partly because the arrangement is relatively new and partly because the Director has been keen to emphasize separation of roles. There is also a risk that TDR, and its resources, could end up subsidizing WHO activities, and this is a concern of some respondents who comment that the arrangement was primarily driven by a need for WHO to reduce costs for a Division that is not yet fully funded. Another issue is that the two roles are potentially too much for one person to handle and this is of particular concern in the medium-term, once the current Director retires. Some respondents are adamant that this arrangement should only be temporary and that both jobs need their own full-time person in the long-term.

227. The WHO Academy is relatively new and the TDR Secretariat largely sees it as an opportunity for greater dissemination of TDR's training. However, the Academy's intention is that, while technical teams might develop training content in future, this will have to be delivered through the Academy. While it is possible that this is an ambition that might not be fulfilled, it could be a risk for TDR as a programme, and probably merits monitoring as such. Indeed, in terms of likelihood, it is probably a more likely risk than the mobility policy as it is being actively implemented although not yet in areas where TDR is working, e.g. on research.

228. In addition to TDR, there are two other research entities, HRP and AHPSR, located within WHO's Science Division. There is a warm and constructive working relationship between TDR and HRP but less so with AHPSR. The most obvious area of collaboration is on research capacity strengthening and the entities have adopted a joint theory of change but it is unclear how useful this is in practice. However, given that much of the research strengthening capacity is generic across the three entities, some respondents consider that the three entities could work even more closely together on research capacity strengthening and some would like to see the entities, or at least their work on research capacity strengthening, merged.

229. TDR works particularly closely with some universities, including those who host RTCs. Some respondents would like to see closer relationships with national governments, such as Ministries of Health and with civil society and the private sector.

Climate change

230. Climate change is included in TDR's current strategy [2] as a factor of vulnerability for infectious diseases of poverty. At impact level, TDR seeks to contribute to SDG 13 Goal on Climate Action. Climate is included in one of TDR's expected results (ER1.3.3) which is "*population health vulnerabilities to vector borne diseases: increasing resilience under climate change conditions in Africa (operationalizing One Health)*." TDR's work on climate change rests on a multisectoral, transdisciplinary approach encapsulated in a One Health framework. This requires TDR to forge partnerships with non-health actors in the fields of environment, education, climate and agriculture. [75]

231. Although climate change is mentioned in the current strategy, it does not feature as a crosscutting area and appears to be mostly limited to one project under IMP. Climate change is mentioned in the narrative of the current performance framework [11] and in relation to SDG13, Goal 13.1. However, there are no specific outcomes, outputs or indicators in the framework. While the previous framework [35] included a team outcome on climate change mitigation "*promotion and strategies influenced by new evidence about climate and environmental change impact on vector-borne diseases*" and the team output "*evidence on the effects of climate and environmental change",* these were not actively monitored with a KPI.

232. TDR has undertaken work on climate change in relation to vector-borne diseases and operationalising a One Health approach. TDR has led cutting edge work on the interplay of climate change on infectious diseases. For example, from 2014-17, TDR supported research projects in Côte d'Ivoire, Kenya, South Africa and Tanzania which included climate change considerations in control of vector-borne diseases. A TDR grantee who participated in one of the projects reflected, "*how can One Health be operationalized in the context of COVID-19 and climate change? That will be an eye opener: it is one output of the grant to put this knowledge forward, and TDR helped to develop a new field here*." TDR staff also note the importance of researching the potential impact of climate change on vectors of infectious diseases, even though that impact may not yet be fully realized. They noted, *"we are seeing alarming signs, a shift in vector ecology, mosquitoes are migrating to new areas. This is a real biological phenomenon. That is why we need more implementation research as it matures in countries there will be more on this."*

233. The work on climate change appears to have declined in recent years. Possible factors identified by respondents included the end of a particular designated funding programme and disbanding of the Vectors, Environment and Society unit. One TDR respondent considered that it was difficult to get funding for the research fieldwork needed to study the impact of climate change. They commented, "*what hurts a lot on subjects like vectors or climate change is that you have to support field activities that nobody wants to fund anymore. Field activities are less and less attractive or fashionable. When it comes to collecting data on vectors, the environment, it is not done*." In addition, there may be an apparent tension between TDR's country-driven approach and a focus on climate change as it is reported that open calls have not generated proposals related to climate change. This could be because other thematic areas are considered more of a priority for health researchers in particular contexts in low- and middle-income countries or it could be that TDR may not be well known among climate change and environmental researchers which may limit the demand for support from the programme. This lack of pull from the countries is exemplified by the fact that publications tackling climate change in TDR-supported research have been tied to specific calls for proposals. In the current strategic period, in the absence of such a call, there have been very few TDR-supported publications which refer to climate change in their title (see Figure 5, p19).

234. Nevertheless, respondents consider that there are opportunities for TDR to increase its work on climate change with many considering that this could be an area on which it focuses in the next strategy aligned to its objectives of supporting resilient health systems through implementation research, addressing the determinants of infectious diseases of poverty and mitigating health vulnerability factors in low- and middle-income countries. A member of one of TDR's advisory committees commented, "*top of the agenda should be climate change and understanding how that plays out for the interface poor populations/infectious diseases. Out of that comes pandemics preparedness.*" There may also be funding opportunities associated with climate change mitigation in relation to global health research in terms of emergencies, epidemics and pandemic preparedness. One TDR respondent considered that TDR's next strategy should envisage different options for focusing the programme's work thematically, *"considering the changes happening globally, the pandemic, vector borne diseases, climate change… TDR's contribution should be broadened on research capacity strengthening beyond what we are doing now. TDR should be more responsive to the context in order to attract funding."*

235. There may be scope to develop partnerships with the co-sponsors of TDR in relation to climate change mitigation. A co-sponsor respondent suggested "*I do think it would be worth reflecting not only on gathering the best scientific expertise, but on how well TDR can find opportunities to inject expertise on chemicals, biodiversity, climate change forums. We don't do that enough, because it is so difficult to respond to the needs of our constituencies: these crises should be reflected in TDR and TDR should communicate on them*." There may be scope for TDR to better support implementation research by co-sponsors on the area of climate change, for example drawing on the SIHI network and engaging communities in identifying local solutions to mitigate the effects of climate change. One respondent noted, "*TDR can provide an environmental and community validation process and guarantee the robustness of the science. This would position TDR in terms of high-level contribution to the SDGs. So far the community level side is very weak, there is no capacity to apprehend community level change."* TDR's comparative advantage lies also in training national authorities and involving communities in tracking the effects of environmental determinants of health.

236. Several respondents considered that climate change, alongside other global health emergencies, would contribute to shifting the paradigm from DEC/non-DEC countries to a global health situation where all countries face similar threats, albeit in different contexts. Climate change thus intersects with equity issues within countries. A JCB respondent explained that "*the focus on low- and middle-income countries is changing, poverty related agenda is changing in times of climate crisis, emerging zoonotic diseases will find their way in high-income countries. TDR needs to translate its expertise to make it relevant for more global interaction. There is need for reciprocal research to deal with the current problems.*"

237. In addition to supporting research in this area, TDR also needs to consider its own contribution to climate change, including its own carbon footprint. During the COVID-19 pandemic, TDR adapted its ways of working. This included its own activities with staff working remotely and holding virtual meetings for the JCB, Standing Committee, STAC and SWGs. It also involved supporting partners to transition to virtual or mixed training modalities. These arrangements greatly reduced the need for travelling. A TDR staff commented *"in the interest of people and the climate TDR should stick to a virtual world to the extent possible. Every single travel should be subjected to a cost-benefit assessment. The added benefit of having a face-to-face meeting should be put into the context of the contribution to climate change."* A donor respondent echoed this view, considering that TDR should move from a "*must do*" to a "*can do*" attitude on virtual working, embracing it as an opportunity to reduce carbon footprint rather than seeing it as a constraint. However, some respondents involved in training activities considered that face-to-face interactions with students and partners should not be totally dispensed with.

238. There is scope for some of the practices adopted during the COVID-19 pandemic to be carried on, or adapted, to reduce the carbon footprint of TDR as well as to support the adoption of innovative ways of working among TDR's partners addressing the obstacles they may face in transitioning to virtual working solutions. Several respondents considered that a mixed approach would continue going forward, although the exact mix may still need to be defined. For example, a TDR respondent commented that *"COVID-19 has been a great learning experience. Thinking about climate change, going forward we may well go for a hybrid approach. COVID-19 has taught us to think outside the box, otherwise we could have continued the same forever."* These issues are also considered in the next section on COVID-19.

COVID-19

239. Much of the strategy period under review has been in the context of the COVID-19 pandemic and this is discussed here as a crosscutting issue. Six topics are highlighted – the effects and interaction of COVID-19 and its control measures on TDR's activities and focus diseases; issues highlighted by COVID-19; the adjustment to virtual ways of working; the involvement of people trained by TDR in COVID-19 responses; TDR's role in responding to COVID-19 and implications for future emergencies including outbreaks, epidemics and pandemics.

240. There is little doubt that the COVID-19 pandemic and the need to focus attention on it, has made TDR's work much more difficult. Many adaptations have had to be made, not only in terms of moving activities online, but also modifying how face-to-face interactions take place, for example wearing face masks and avoiding handshakes. There have also been delays on some activities, e.g. submitting reports, as people have been occupied with direct responses to COVID-19. In terms of TDR's governing bodies, some of the changes in personnel, that were due, have been delayed in order to give a degree of stability at this time. Many of TDR's activities have been able to continue with modifications but this has only been possible because of the hard work and commitment of TDR staff and partners and it has resulted in very high levels of pressure and stress for the staff and others. One area of major concern is that funding has had to be diverted to COVID-19 responses in the short term and it is unclear whether funding levels will recover in the medium- to long-term. Some high-income countries have reduced their levels of Overseas Development Assistance (ODA) spending overall because of the economic costs they have faced through the pandemic. TDR has been particularly active in supporting work on how COVID-19 interacts with some of the diseases of poverty on which TDR focuses, especially TB. Others have done work documenting the effects of COVID-19 on continuity of essential health services [76] and on HIV, TB and malaria. [77] There are some respondents who believe that TDR could have done more in this area, for example on how COVID-19 has affected malaria programmes. There are still opportunities to conduct important research in these areas as there is still patchy knowledge as to how COVID-19 has affected other disease programmes.

241. There have been a number of issues which have been highlighted by COVID-19 which are of importance and relevance to TDR. One respondent commented that the pandemic had shown lots of fractures in the global health landscape and these were especially seen in terms of how vulnerable and marginalized populations have been particularly affected by COVID-19 and responses to it. Gender has provided one lens for understanding this differential effect of COVID-19 on different populations. Another area that has received more emphasis as a result of COVID-19 is the so-called "*One Health*" approach which recognizes that the health of the environment, plants, animals and people are all interconnected. Some respondents commented that the degree of focus on COVID-19 did not necessarily mean that it was the biggest problem facing the world, rather it was perhaps the most obviously pressing. One respondent commented that COVID-19 was "*less horrible*" than climate change. One particular issue raised by COVID-19 is the need for imaginative and innovative thinking, which is often referred to as "*thinking outside the box*". With many of the conventional approaches to health and development unavailable, there was need to adopt new approaches, not least the greater use of online, digital platforms.

242. Because of COVID-19 and the restrictions associated with it, many activities moved to a virtual, digital environment including staff working, governance meetings and training activities. This was possible to an extent that would not have been possible even just a few years ago partly because of the improvements in online conferencing technology in general but also because specific work had been done by TDR and others to move some activities online even before the COVID-19 pandemic.

243. There have been many advantages of this transition. It is reported that costs have been reduced dramatically as has TDR's carbon footprint. At the same time, the reach of some activities, for example, training has massively increased. There are also some less apparent benefits. For example, within the TDR staff team, some administrative staff who would not have spoken in a face-to-face meeting do speak online as opportunities to speak to one or two colleagues outside a formal meeting are no longer so readily available. Also, the idea to have a TDR podcast was generated in time that was available because of reduced time spent travelling.

244. However, there have also been disadvantages of operating online only. Meetings of governance bodies have had to be shorter and there have been fewer opportunities for informal interactions, e.g. over coffee or in the corridor which are considered important both in terms of serendipity and in building and maintaining relationships. In particular, while online interactions may work well for established projects among existing teams, it may be difficult to establish new activities or induct new staff online only. There are concerns that relationships may have deteriorated as a result of only interacting online. For example, WHO's NTD Department reported that their interactions were now less with TDR than before the pandemic but there could be other reasons behind this including TDR's shift in strategy and focus, and changes in personnel. Some respondents consider that the quality and impact of virtual training courses are lower than for face-to-face training but these observations do not appear to be based on empirical evidence. For students whose course require field studies, there have been difficulties and, in some cases, they have had to change the nature of these studies to literature reviews. There have been particular challenges in some areas. For example, it has proved more difficult to obtain photographs for communication purposes as these were often taken by staff when travelling. Some people have found online working less productive and it may depend a lot on individual circumstances. There is a risk that online interactions may exacerbate inequalities unless active steps are taken to avoid this. Another concern raised was that online meetings seem to be predominantly in English and this may be difficult for speakers of other languages.

245. A point of learning is that online activities work best when designed specifically for the online environment and there is not just an attempt to copy online what would otherwise have been done face-to-face. This is particularly the case for training activities where lectures are limited in length and always recorded on video. Participants are helped to engage online by being offered hotel accommodation when it is needed and being provided with wireless access and provision of data.

246. There are sharply divergent views about implications for the future. Some respondents, who generally see face-to-face interactions as better than online interactions, appear to envisage a return to something not too dissimilar to a pre-COVID normal. On the other hand, some respondents think that there can be no return to "*business as usual*", that almost everything can be done online and that the benefits of cost and carbon saving and increased reach should not be overlooked. Most respondents seem to agree that it is likely that there will be some form of "*hybrid*" solution where interactions are not only online but will also involve much more judicial and thoughtful use of face-to-face interactions. It is important to note that COVID-19 is not the only contextual variable to be considered in any future planning. For example, for TDR training activities, the establishment and development of the WHO Academy (see p69) could have a pretty profound effect on how TDR delivers research capacity strengthening activities in future.

247. There is evidence that capacity built by TDR among frontline health workers on operational research has been used in tackling the COVID-19 pandemic. In 2020, almost three-quarters (652 of 895, 73%) of SORT IT alumni responded to an online survey on the topic. [74] Of respondents, almost two-thirds (417 of 652, 64%) were contributing to COVID-19 responses. Of these, almost three-quarters (307 of 417, 74%) were applying skills they had learned through SORT IT to tackle the COVID-19 pandemic. There were varying results among men and women (see p67).

248. An earlier article based on this survey also included results from alumni of PGTS and CRDF in addition to SORT IT. [4] Out of 1,254 people trained, 1,143 could be contacted (91%) and 699 responded (56% of those trained and 61% of those who could be contacted). Of those, 411 (59%) were involved with the COVID-19 responses, of whom 315 (77%) reported applying their acquired skills. This article included a lower number of SORT IT responders (488) than the article mentioned in the paragraph above (652). Of those respondents, 302 of 488 (62%) were involved in COVID-19 and, of those, 219 (73%) reported applying their acquired skills. In terms of PGTS, 208 (81%) of the 248 trained could be contacted and 143 responded (57% of those trained and 69% of those contacted). Of those, 64 (45%) were involved in COVID-19 and, of those, 58 (91%) reported applying their acquired skills. In terms of CRDF, 104 (94%) of the 111 trained could be contacted and 68 responded (61% of those trained and 65% of those contacted). Of those, 45 (66%) were involved in COVID-19 and, of those, 38 (84%) reported applying their acquired skills.

249. This issue, in general, and this survey, in particular, were commented on positively by a number of respondents. While TDR's research capacity strengthening work may have a particular topical focus, it does focus on skills which are highly transferable and this has been of particular importance in responses to COVID-19. Some respondents commented that this had helped to break down disease silos and some also pointed out that an implementation research approach had been extremely useful in responding to COVID-19, for example, in answering questions related to why vaccine programmes are not being rolled out as quickly or as equitably as might be optimal. However, respondents' views on the implications of this were mixed. While some recognized the transferability of the skills being taught by TDR, they advised that TDR should retain its current disease focus. However, some thought that TDR should recognize and market this transferability more because this was not widely-known or valued beyond TDR's closest stakeholders. This group considered that TDR's approach to strengthening research capacity was transferable beyond infectious diseases, for example to the area of non-communicable diseases, and this was an area into which TDR might consider expanding.

250. In terms of TDR's roles in responding to COVID-19, before discussing these in detail, it is worth noting that respondents considered that TDR had been able to respond in the way it did because it is inherently a very flexible organization. While this may be in part due to its relatively small size, respondents also commented that TDR's strategy is broad enough to allow plans to change as the context changes, particularly as emergencies of different types occur. One respondent commented that TDR's practice of developing two budget scenarios for planning purposes aided this flexibility as there is need to periodically review actual funding to determine what activities can and cannot be done within those two scenarios.

251. One particular role played by TDR was to look at how COVID-19 was affecting services for other diseases, such as TB and malaria. One respondent commented that TDR did not just "*pound the nail harder*" of those particular diseases. Rather, TDR supported work which examined how COVID-19 was affecting services for those diseases, including identifying what could be done about it. For example, in South-East Asia, TDR helped set the COVID-19 research agenda so that it included looking at effects on TB and malaria services. TDR-supported researchers published a study of operational research on tackling TB in Eastern Europe and Central Asia during the COVID-19 pandemic. [78]

252. As mentioned above, a key role played by TDR was that research capacity strengthened by TDR in previous years, which was focused on "*tropical diseases*", was available to be used in implementation research in relation to COVID-19. [74] This highlights the importance of investment in country capacity to bridge science, policy and action in relation to COVID-19. [79]

253. In addition, one role that TDR played was to try to ensure that responses to COVID-19 focused on the poorest and most vulnerable. For example, TDR-supported research looked at who carries the burden of COVID-19 in low- and middle-income countries. [80] One respondent commented that TDR's work on data sharing and fair data was important in this regard. However, some respondents considered that this is a role that TDR could have played more.

254. TDR has been active in using and promoting new technologies to support responses to COVID-19. This includes the introduction of a podcast, a MOOC, online training for SORT IT [81] and the potential use of artificial intelligence. [82]

255. TDR has highlighted that lessons learned from one disease outbreak may be relevant in another. For example, one respondent commented positively on how TDR had promoted the use of tools developed for Ebola outbreaks to respond to COVID-19 in a particular country.

256. TDR has also supported broader work looking at the implications of COVID-19 in product research and development [83], social innovation [84] and progress towards agreed health outcomes. [85]

257. There are mixed views among respondents about whether TDR did enough in relation to COVID-19 or could have done more. Those in the latter group considered that TDR could have done more to address fragmentation of research responses and could have been more involved in WHO's Incident Management Support Team (IMST). A number of respondents, even among those who thought TDR had responded well to COVID-19, felt that its work and contribution were not widely known beyond TDR's closest stakeholders.

258. There is consensus among respondents that TDR's future planning processes will need to take into account lessons learned from the COVID-19 pandemic. There are, however, widely divergent views as to what they are and the extent to which TDR should get involved in the current "*frenzy*" around pandemic preparedness. Some think it essential that TDR be involved as the context has profoundly changed and attempts to revert to any approach which is seen as "*business as usual*" risks failing to attract support. However, there were also respondents who saw the risk to TDR of getting too involved in planning for "*pandemic preparedness*". They were concerned that TDR would be diverted from its core mission and focus into a space that is already very crowded. They urged TDR not to forget its portfolio and to remain focused on the diseases on which it currently is considered to focus, namely malaria, NTDs and TB.

259. However, there are other who profoundly disagree and believe that TDR needs to re-think its approach and priorities in the light of the current context. Perhaps least controversial are many areas that resonate with that new context and also play to TDR's strengths. These include:

- Emphasizing the importance and relevance of implementation research
- Emphasizing the leading role to be played by low- and middle-income countries in setting research priorities
- Considering how best to describe TDR's disease focus. "*Tropical diseases*" as a term is seen as archaic and inaccurate. While "*diseases of poverty*" or "*infectious diseases of poverty*" are better terms, adopting these as TDR's focus does have implications for the diseases on which TDR might focus as other infectious diseases (and some non-communicable diseases) may be as important as causes of morbidity and mortality among poor and marginalized populations as TB, malaria and NTDs in some contexts. In addition, many diseases that particularly affect

poor and marginalized populations are not only diseases of poverty, e.g. TB, HIV and COVID-19. While they may disproportionately affect poor and marginalized populations, they also affect others and, indeed, this may explain why these diseases achieve higher global priority. It may also provide a more effective and sustainable rationale for involvement in and support for responses to such diseases, i.e. to protect domestic populations from risk of infectious disease rather than through altruistic or developmental motivations.

260. Considering these issues, however, may have certain implications for TDR's apparent focus on TB, malaria and NTDs. While this might be entirely appropriate in some contexts, it is likely to be less appropriate in others and there may be need for TDR to apply its main approaches and learning in other areas. However, any shift in this direction is likely to be problematic for those of TDR's stakeholders who believe TDR should maintain its current focus on these diseases.

261. There are those who think TDR may need to move even further if it is to remain relevant in a much-changed and evolving context. In terms of pandemic preparedness, there will be need for risk analysis, surveillance systems and adaptation of health systems and some respondents consider that TDR may be well-placed to contribute to these roles, particularly if TDR worked even more closely with WHO. There is potentially an important role for TDR to play in relation to implementation research related to malaria and COVID-19 vaccines. Respondents are also concerned about the importance of emerging diseases and that, to date, TDR has not been greatly focused on these. Activities needed across all these areas include normative guidance, coordination and training. TDR would be well-placed to contribute evidence to be used for the development of normative guidance and in the area of training, although clarity may be needed as to how future training provided by TDR will fit with the development of the WHO Academy. While respondents consider that TDR may have less of a role to play in coordination than WHO, there may be value in TDR being/remaining involved in key networks. Some respondents stressed the current emphasis on global public health goods and TDR may need to articulate how it will contribute to these.

262. A key issue identified by respondents in all these areas is TDR's relative lack of profile beyond its most immediate stakeholders. They consider that there is a pressing need to communicate more broadly including potentially through having an ambassador as in other programmes.

Conclusions and Recommendations

263. This section presents the review's conclusions and the recommendations emanating from them. The recommendations identify particular stakeholders to whom they are addressed and the time period over which these recommendations might be implemented, within this strategy, within the next strategy or in the longer-term. The section starts with three general conclusions about the development of the next strategy and then presents conclusions according to the six criteria used for the review (relevance, effectiveness, efficiency, impact, sustainability and quality of science) and four crosscutting issues (gender and intersectionality, partnerships, climate change and COVID-19). In some cases, elements of the three general conclusions are explained in more detail in specific conclusions and recommendations and, in these cases, cross references are provided. In addition to the first three conclusions and recommendations, there are a number of other conclusions and recommendations of relevance to the development of TDR's next strategy. These are clearly marked in the "*next strategy*" column related to the recommendation.

Conclusions concerning strategy development

Conclusion 1: While the previous strategy development process was considered to be consultative by TDR management, some groups of stakeholders commented that they had not been able to contribute as much as they would have wished.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
1.1. In preparing the next strategy, to organize a structured process of consultation, that might be externally facilitated, with a wide range of stakeholder groups including, in particular, co-sponsors; JCB, Standing Committee, STAC, and SWG members; WHO regional offices; WHO Science Division; WHO relevant technical departments; WHO Academy; other similar research entities (HRP and AHPSR) and TDR staff.	TDR Secretariat		✔	

Conclusion 2: TDR's shift from a focus on product R&D for specific diseases to a focus on implementation research, research capacity strengthening and the needs of low-and middle-income countries is appropriate. However, while this is well-understood among TDR's closest stakeholders, many respondents beyond this group do not fully understand this. This is not helped by some lack of clarity over whether the current strategy's first pillar is research, research for implementation or implementation research. There is also some confusion, at least for communications purposes over the use of the term research for implementation as an overarching term for all implementation research and for a specific sub-type of such research, that is research for implementation and access.

This strategic shift has implications for what TDR's success might look like which have not perhaps been fully understood by some respondents. TDR's future success is less likely to be seen in breakthrough technologies for specific diseases but rather in terms of improved implementation at local and national level. In addition, TDR's future success will be less in terms of its own achievements but rather in terms of the achievements of others that TDR has supported, including in particular research partners at country level. Given this, it is likely that TDR's engagement and focus will increasingly be at country level and this creates some challenges for a small global secretariat based entirely in Geneva.

There could be implications also for any disease or thematic focus that TDR has. Historically, TDR's focus has been on "*tropical diseases*" and this has largely been interpreted as malaria, TB and NTDs. Increasingly, TDR describes its focus as (infectious) diseases of poverty but it is unclear if this is a re-branding of the

three main disease groups or reflects a broadening of focus. Analysis of TDR-supported research publications shows that the majority of these continue to focus on TB, malaria and NTDs. While it could be that this is because this reflects local and national priorities, it could also be because this is what local and national stakeholders consider are TDR's main area of focus. Having a disease or thematic focus is difficult to justify and explain if TDR's main areas of focus are implementation research, research capacity strengthening and low- and middle-income countries.

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
2.1 TDR's focus in the next strategy to remain on implementation research, research capacity strengthening and low- and middle-income countries.	TDR Secretariat and those consulted		✔	
2.2 Next strategy to be clearer as to what implementation research and its sub-divisions are avoiding having implementation research as both an overarching term and a sub-category. If sub-categories are retained, perhaps a different term could be used, such as research for delivery and access.	TDR Secretariat		✔	
2.3 TDR to clearly identify what success looks like in terms of the current and future strategic focus. This is not so much about specific indicators but about clearly describing that success is no longer about TDR identifying breakthrough products in specific diseases but is about TDR's partners improving implementation locally and nationally.	TDR Secretariat/ JCB		✔	
2.4 TDR to identify ways in which it might increase its engagement and focus at country level. Possible options could include having more formal national TDR representatives within existing partner organizations and/or having national research officers within the country offices of WHO or another co-sponsor and/or structuring the secretariat differently and/or having some staff based in regions/countries.[14] There may be need for different solutions in different country contexts.	TDR Secretariat/ JCB		✔	
2.5 TDR to consider whether there is need to change its name with or without change of its acronym. Options might be to formally change the name to the name being used in practice, i.e. UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training on (Infectious) Diseases of Poverty with or without changing the acronym TDR which has widespread recognition and value as a brand.	JCB/Co-sponsors			✔
2.6 TDR to consider how agencies and programmes working in similar areas (of implementation research, research capacity strengthening and low- and middle-income countries) could work more closely together including potentially merging activities and/or organizations.[15]	JCB/HRP/ AHPSR/WHO Academy/co-sponsors/ funders			✔

[14] This recommendation is also stated in Recommendation 5.2.
[15] See also Recommendation 28.3.

Conclusion 3: Some key areas of TDR's work are not currently reflected in indicators in TDR's performance framework. The most substantive is at the level of impact and sustainability. According to the performance framework, TDR's expected impact is that countries are generating and using research evidence but TDR currently does not assess the extent to which this is happening across individual countries or the extent to which TDR's activities are contributing to this. TDR does have anecdotal evidence of potential contribution of specific activities or partners but there has not been to date any systematic assessment of this in particular countries.

Other key areas of TDR's work that are not currently reflected in indicators in TDR's performance framework include:

- Any measures related to climate change and the environment, both within TDR's programmes and activities and in terms of TDR's own carbon footprint.
- Any measures related to TDR's preparedness for and involvement in responses to emergencies/outbreaks/epidemics/pandemics.
- Measures of sustainability beyond continued use of TDR products.
- Gender and geographical balance within TDR staff and in individual elements of its governance structure, particularly the JCB.
- An indicator to measure the proportion of funds spent on operations support disaggregated by designated and undesignated funds.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
3.1. To conduct country-level evaluations/case studies focused on understanding the extent to which countries are generating and using research evidence and any contribution TDR and its programmes and partners have made to this, including through promoting implementation research, providing and leveraging funding, and strengthening research capacity. [16]	TDR Secretariat /JCB		✔	
3.2. To address the following areas in preparing metrics/indicators in any performance framework for the next strategy: • Climate change metrics in TDR programmes[17] • Measure of TDR's own carbon footprint[18] • Measures of emergency preparedness and involvement • Measures of sustainability beyond continued use of TDR products[19] • Indicators of gender and geographic balance in TDR staff and specific elements of TDR's governance structure, e.g. JCB[20] • Indicator to measure proportion of spending on operations support (by designated and undesignated funding)[21]	TDR Secretariat /JCB		✔	

[16] See also Recommendations 17.1, 20.1 and 21.1.
[17] See also Recommendations 30.1
[18] See also Recommendation 30.2.
[19] See also Recommendation 21.1
[20] See also Recommendation 15.2
[21] See also Recommendation 13.2

Relevance

Conclusion 4: TDR's strategic focus on implementation research and research capacity strengthening in low- and middle-income countries continues to be extremely relevant. While diseases such as tuberculosis, malaria and NTDs remain relevant in many contexts, there are now many more actors on these diseases and TDR's relevance can no longer be defined in terms of these diseases as it once was. TDR's approach of responding to locally-identified research priorities and to critical areas that are less well supported and constitute gaps in the global health research agenda is also very relevant. While TDR's closest stakeholders understand these issues well, there is a wider group of stakeholders who understand these less clearly and continue to identify TDR with research on "*tropical diseases*".

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
4.1. To intensify communications with a wider group of stakeholders to explain TDR's strategic priorities and approaches.	TDR Secretariat	✔		
4.2. To determine whether TDR wishes to only be guided by locally-determined priorities or whether it wishes to continue to highlight certain thematic priorities in the next strategy that might otherwise be overlooked. Consideration to be given to shift away from these priorities being based on specific diseases or disease groups to thematic issues, such as climate change, gender and intersectionality and emergencies/outbreaks /epidemics/ pandemics.	TDR Secretariat and those consulted		✔	

Conclusion 5: Given TDR's shift away from product R&D towards research capacity strengthening and implementation research based on locally-determined priorities, there is need to ensure that TDR is able to engage effectively with stakeholders at national and regional level including with key partners and co-sponsors operating at those levels.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
5.1. To engage with each of the co-sponsors separately on the relevance of TDR to their activities. With the World Bank specifically, identify opportunities for joint collaborative projects, as TDR has done with other co-sponsors, in one or two countries	TDR Secretariat / Co-sponsors	✔		
5.2 TDR to identify ways in which it might increase its engagement and focus at country level. Possible options could include having more formal national TDR representatives within existing partner organizations and/or having national research officers within the country offices of WHO or another co-sponsor and/or structuring the secretariat differently and/or having some staff based in regions/countries. [22] There may be need for different solutions in different country contexts.	TDR Secretariat /JCB		✔	

[22] This is also stated as Recommendation 2.4.

Effectiveness

Conclusion 6: TDR is an effective organization in terms of delivering on its KPIs. However, progress would be easier to track if targets had annual milestones and not just end-of-strategy targets. There is also an issue for targets that have already been met and, in some cases, e.g. on gender, targets would be better set as a target range than as a single number. The target on the percentage of funding received from multi-year, unconditional donor agreements is not going to be reached based on current trajectory. Potential implications for indicators and the performance framework in the next strategy are covered in Conclusion 3 and Recommendation 3.1.

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
6.1. To develop annual milestones for KPIs to aid understanding and visualisation of whether they are on track.	TDR Secretariat	✔		
6.2. To decide what to do with targets that have already been reached. Option are to i) reset targets, ii) drop the indicators or iii) continue monitoring indicators where there may be risk of falling back (e.g. on gender).	TDR Secretariat /JCB	✔		
6.3. To decide what to do with indicator 23. "*Percentage of income received from multi-year, unconditional donor agreements"* which will not be reached based on current trajectory. Assuming that radical change in donor practices is unlikely in the short-term, options are to i) drop/replace the indicator or ii) revise the target down.	TDR Secretariat /JCB	✔		
6.4. To identify those indicators where targets might be better set as a range rather than as a single number. Possible indicators to consider for this include indicators 13-17 in the performance framework.	TDR Secretariat	✔	✔	

Conclusion 7: While there is strong evidence that short-term courses reach more people at much lower cost and there is anecdotal and survey evidence of the value of longer-term training, relatively little is known about the value or otherwise of short-term courses. As a result, there is insufficient evidence to make clear strategic recommendations about any changes TDR should make to the types of training it should and should not prioritize.

Recommendation(s)	Action	Timeframe		
		This strategy	Next strategy	Long-term
7.1 To collect more evidence on the contribution of short courses, such as the MOOC, to the broader aims of TDR, e.g. of building a critical mass of people with skills in implementation research, and the relative value-added of and the availability of other funding sources for different training modalities.	TDR Secretariat	✔		

Conclusion 8: The TDR Secretariat is diligent and systematic in following up the recommendations of the JCB, Standing Committee, STAC and SWGs. The inclusion of SWG recommendations and actions taken in the units' annual reports is a good development but this has not yet extended to cover global engagement (see Conclusion 9). While TDR does compile lists of STAC, Standing Committee and JCB recommendations, and does report progress against these, the details of this are not currently included in or annexed to the meeting reports. In addition, these responses – and responses to recommendations of reviews – do not indicate whether or not TDR accepts the recommendation made. In terms of "*recommendations*" from

governance bodies, this step may not be appropriate and, in this case, these "*recommendations*" may be better referred to as "*decisions*".

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
8.1. To explicitly reference the recommendation lists in the reports of the STAC, Standing Committee and JCB and to annex them and responses to them to the reports.	TDR Secretariat	✔		
8.2. When responding to recommendations to state explicitly whether or not the recommendation is accepted.	TDR Secretariat	✔		
8.3. To determine whether it is appropriate to refer to "*recommendations*" from governance bodies, particularly the JCB and to consider whether these should be termed "*decisions*".	JCB	✔		

Conclusion 9: TDR has established a system whereby the SWGs for IMP and RCS have a joint session to work with the TDR Secretariat on global engagement activities. However, this approach is not yet working as well as in other areas, e.g. IMP and RCS. In general, the global engagement area of TDR's strategy appears to be the least clearly defined area of the three strategic priorities and, as a result, probably merits particular scrutiny and oversight.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
9.1. To implement the IMP SWG recommendation on having the session dedicated to global engagement before other SWG meetings.	TDR Secretariat and SWGs	✔		
9.2. To generate joint recommendations for global engagement in the same way the SWGs do for RCS and IMP. Global engagement reports to document these recommendations and responses to them as the IMP and RCS reports do.	SWGs and GE "*team*"	✔		
9.3. To review how well this mechanism is working and, based on this review and the assumption that global engagement remains a priority in the next strategy, decide whether global engagement merits its own unit and its own SWG.	TDR Secretariat and JCB		✔	

Conclusion 10: TDR's governance structure is considered to be effective and to add value. However, there are concerns regarding the transaction costs of holding JCB meetings face-to-face that were also raised in the sixth review.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
10.1. To take stock of the experience of the last two years in terms of advantages and disadvantages of the virtual arrangements for the JCB prompted by COVID-19. Consider maximising costs savings and carbon footprint reduction by continuing to hold JCB meetings virtually or, if that is not agreed, to consider alternating one virtual and one face-to-face meeting per biennium.	JCB	✔	✔	

Efficiency

Conclusion 11: TDR is seen as an extremely administratively efficient organization with strong leadership in this area. However, this efficiency is reported to be placing high levels of burden on staff.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
11.1. Given high transaction costs, to consider trying to control workloads, for example, by avoiding taking on small projects.	TDR Secretariat	✔	✔	
11.2. If the RCS unit is to be maintained in the next strategic period, it would be desirable to fill the Unit Head position sooner rather than later. The profile for this position should emphasize good organizational and management skills rather than scientific expertise, although this may be desirable. While educational/ pedagogical expertise would be beneficial for the team overall, that may be better suited to a team member rather than for the Unit Head role.	TDR Secretariat	✔		

Conclusion 12: While TDR's current structure does broadly reflect its strategic priorities, there is an issue that most of TDR's activities involve research capacity strengthening and these activities are carried out by RCS, IMP and through global engagement.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
12.1. To review the continued utility of an RCS unit and how TDR might be best structured to deliver its next strategy. One option is to keep the structure mostly as it is, with IMP and RCS units, while clarifying the situation of global engagement and whether this area should have a unit and SWG depending on how well the current arrangement is going. However, the new strategy might require a more radically revised structure, particularly as research capacity strengthening is currently both TDR's main way of working and the name of a specific unit.	TDR Secretariat /JCB		✔	

Conclusion 13: TDR makes every effort to ensure projects funded from designated funding fully cover the cost of operations including the salaries of staff working on the project. However, although TDR charges designated funds programme support costs (PSC) at a level of 13% set by WHO, this does not cover the full costs of such operational support which are currently around 19% across TDR. This means that TDR core costs are being met completely from undesignated sources.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
13.1. To hold a discussion between TDR Secretariat, the JCB and funders to decide how this should be approached. One option is for those providing undesignated funding to agree to fund all TDR's core costs as part of their investment in TDR as a programme/organization. If that is not agreed, it may be necessary to see if those providing designated funding would be willing to pay at a higher level towards these	TDR Secretariat /JCB	✔		

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
costs and to see if a way could be found to do this through WHO systems.				
13.2 TDR to actively monitor this, e.g. by clearly distinguishing operations and operations support costs in salaries in its expenditure reports as previously requested by JCB and reporting on the percentage of UD/DF/total funds spent on operations support (including salaries) and potentially making this a key performance indicator, and then taking steps to try to drive this percentage down.	TDR Secretariat /JCB	✔	✔	

Conclusion 14: The value-added of TDR being embedded in WHO is well recognized. In addition, the difficulties related to WHO systems, which were documented in the sixth review, seem much less problematic now, not least because of improved project and programme management systems through the adoption of e-TDR.

Conclusion 15: While there are more women than men among TDR staff, many are in administrative positions and women are more likely to be on lower grades than men. In many ways, these issues are reflected in WHO headquarters as a whole, although women in administrative roles in WHO headquarters are more likely to be on higher grades. Also, most TDR staff are from high-income countries and from countries that are over-represented in WHO. TDR management are aware of these issues but there are challenges to address them because of low staff turnover and the requirements of WHO's recruitment procedures.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
15.1. To take every opportunity to address these imbalances by publishing job vacancies broadly and giving opportunities for women from low- and middle-income countries to be initially shortlisted.	TDR Secretariat	✔		
15.2. To report regularly on the evolution of these numbers. Options include reporting annually or every biennium to JCB.	TDR Secretariat	✔	✔	
15.3. In line with the evaluation of gender in WHO in the frame of the Transformation, to continue to actively address the issue of unconscious bias through training at management and other levels, including through training provided by WHO.	TDR Secretariat	✔		

Conclusion 16: At the organizational level risks are being actively identified and managed. However the term "*significant*" risk is being used in a number of different ways which do not coincide with WHO definitions. While risks are being assessed in terms of impact and likelihood/probability, these elements, and the risk level assessments that are derived from them, are not being reported to the JCB. This means that a wide range of different risk levels are being reported to JCB as "*significant*" including low, moderate and significant levels. While it is appropriate to close risks when the risk no longer exists, some risks are being closed prematurely when the risk level is relatively low but the risk still exists and this issue was noted in the sixth review. While there do appear to be some systems in place related to project/activity-level risks, these are not as systematic as those for managing organizational risk.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
16.1. To use consistently WHO definitions of risk levels (low, moderate, significant and severe) including in reporting to the JCB. This will involve reporting on impact and probability/likelihood of identified risks.	TDR Secretariat	✔		
16.2. To decide if risks with low and moderate levels of risk should continue to be reported to the JCB	TDR Secretariat /JCB/ Standing Committee	✔		
16.3. To only close risks when they have really ended. If the risk persists but at a lower level, the risk should remain open but may not need to be reported to the JCB unless the risk level rises again.	TDR Secretariat /JCB/ Standing Committee	✔		
16.4. To introduce a more systematic way of managing project/activity-level risks, including risk scoring, regular risk reporting and ways to coordinate risk management and escalate project/activity-level risks of programmatic and/or organizational importance.	TDR Secretariat	✔		

Impact

Conclusion 17: While TDR actively monitors the contributions of its interventions towards "*impact goals*", these are really at the level of outcomes. TDR's expected impact is that "*countries [are] generating and using the research evidence they need to leave no-one behind when acting to reduce the burden of infectious diseases of poverty.*" Currently, TDR is not systematically assessing the level to which this is occurring at the level of specific, individual countries.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
17.1. To supplement current monitoring and evaluation activities with efforts to assess the extent to which research evidence is being generated and used in individual, specific countries and the extent to which TDR's activities have contributed to this. Options for doing this might include conducting country-level impact case studies as part of future TDR reviews/evaluations or seeking to embed an assessment of TDR's impact in WHO country evaluations whenever possible.	TDR Secretariat /JCB	✔	✔	
17.2. While it may not be feasible to specifically identify TDR's contribution to any progress towards SDGs, to take opportunities to seek to better understand this wherever possible including, for example, linking up more to the SDG3 GAP.	TDR Secretariat and co-sponsors (as SDG3 GAP agencies)	✔		

Conclusion 18: There appear to be some areas of work which are duplicated across units, e.g. IMP and RCS SWGs both make recommendations on SORT IT and both IMP and global engagement have been leading work on gender.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
18.1. To look for and take opportunities to build synergies between interventions in the units, including for example, reviewing the two sets of recommendations by SWGs on SORT IT, perhaps at the STAC and considering how mainstreaming the gender work across units, e.g. IMP and global engagement, could be better coordinated.	TDR Secretariat /STAC	✔		

Conclusion 19: There is potential to generate more impact through TDR's co-sponsors if they could move beyond participation in TDR's governance and specific joint projects, for example, by TDR playing a more active role in supporting and promoting implementation research by co-sponsors.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
19.1. To discuss with co-sponsors individually how engagement between the co-sponsor and TDR might move beyond participation in TDR's governance and joint projects and how TDR can be more influential on implementation research capacity and activities across the co-sponsors operations including at country level.	TDR Secretariat /Co-sponsors	✔		

Sustainability

Conclusion 20: TDR's current approach to the sustainability of its outcomes and results is quite generic and does not take into account individual country contexts which may mean that the same TDR activities produced sustained benefits in one country but not in another. Impact and re-entry grants were identified by respondents as important contributors to sustainability.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
20.1. To conduct country assessments in order to determine the likelihood that interventions would be sustainable. If there are found to be factors that make sustainability unlikely in a particular country, options may including partnering with co-sponsors to make sustainability more likely or not prioritizing interventions in that particular country/context.	TDR Secretariat /Co-sponsors	✔	✔	
20.2 To consider continuing and/or reintroducing impact/re-entry grants as important contributors to sustaining trainees' involvement in research.	TDR Secretariat	✔		

Conclusion 21: The current measurement of sustainability through indicator 21 "*number of effective public health tools and strategies developed which have been in use for at least two years*" is problematic as the indicator does not specify that the monitoring of this period would start after TDR support has ended and the period of two years seems arbitrary and may lack relevance to different tools.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
21.1. In the new strategy, to consider monitoring sustainability through other measures for example, the number of countries where TDR has made an assessment of the likely sustainability of outcomes to which they contribute and has identified contextual factors that may affect sustainability, with a rating system of sustainability likelihood (likely without additional interventions/ possible with engagement of co-sponsors and others/ unlikely).	TDR Secretariat /JCB		✔	

Conclusion 22: In terms of sustaining TDR as a programme or organization, its dependence on donor funding constitutes the major risk for sustainability. However, this is well-managed and TDR has built a strong reputation with key funders. TDR is fortunate to have funders who are willing to provide undesignated funding. However, the proportion of funding provided as undesignated is declining and TDR depends on five funders for the bulk of undesignated funding. WHO's fundraising strategy which envisages more funding going through WHO could potentially divert funds away from TDR. There is an ongoing issue of capacity in terms of resource mobilization at the TDR Secretariat. The sixth review's recommendation of increasing fundraising capacity was not taken forward in terms of a staff member due to the headcount cap. The TDR Secretariat report that they did hire a consultant in this role but this did not raise sufficient funds to cover the cost.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
22.1. To map potential funding opportunities in terms of the changing global health research architecture, including exploring potential other sources of undesignated funding and considering non-donor options, such as membership fees or fees for service.	TDR Secretariat	✔		
22.2. Based on the mapping results, identify and prioritize potential donors from whom TDR will try to raise additional undesignated funding. To then seek to build relationships and collaborations with those donors.	TDR Secretariat	✔	✔	
22.3. Based on the mapping results and prioritization exercise, to communicate on the value-added of TDR in relation to the priorities of donors/new funding sources.	TDR Secretariat	✔	✔	
22.4. To identify ways in which TDR's resource mobilization capacity can be strengthened despite the constraints of the headcount cap. Options may include bringing someone with that skill in a role to be recruited or explicitly prioritizing this role in the job of one or more existing managers.	JCB	✔	✔	

Quality of science

Conclusion 23: While TDR-supported research is widely acknowledged as of good quality, its quality assurance systems are still largely premised on the assumption that TDR is doing the work and producing the research rather than, increasingly, working through partners to do so. Substantial progress has been made in terms of publishing research in open access formats but some papers are still published in formats which are not open access. Analysis for this review indicates that this is particularly the case where the first author is from a high-income country and where the paper is focused on NTDs.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
23.1. To establish a quality assurance system which is explicitly designed for delivery through partners and not through direct delivery. This will involve identifying key areas of quality and relevant quality standards needed and then using these to assess the extent to which partners have, and continue to have, such systems in place. While this could involve sampling of products, the day-to-day responsibility of quality assuring products will be with partners.	TDR Secretariat	✔		
23.2. To update TDR's standard operating procedures to bring them in line with TDR's way of working which is now primarily through partners.	TDR Secretariat	✔		
23.3. To achieve the target of 100% of publications in open access format, TDR to better understand why some publications continue to be in non-open access formats. One option would be to review this issue with authors who have published in these formats in the last few years, seeking to identify the factors involved.	TDR Secretariat	✔		

Conclusion 24: The STAC and SWGs provide an effective basic structure and system that contributes effectively to ensuring the quality of TDR's work. They do not yet cover TDR's work on global engagement, although steps have been taken in that direction (see Conclusion 9 and Recommendations 9.1-9.3).

Gender and intersectionality

Conclusion 25: TDR has adopted a strong intersectional gender approach in different aspects of its work, captured in its Intersectional Gender Research Strategy. Although TDR has put in place measures to encourage the participation of women in science and promote the inclusion of an intersectional gender lens in research, there are still bottlenecks to realize this agenda and the work undertaken in different strategic areas could be better integrated.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
25.1. TDR to consolidate its expertise on gender by making the current position permanent and to consider the feasibility of increasing its technical and coordination capacity on gender and intersectional research by including gender and equity specialist skills in its technical teams.	TDR Secretariat	✔		
25.2. TDR to commission research to better understand why women were less likely to be using skills learned in responding to COVID than men	TDR Secretariat	✔		

Conclusion 26: TDR management is aware of the need to improve gender and equity internally, however this is not yet fully reflected in the organization's staffing and JCB composition. There are also other conclusions and recommendations (#3.1 and #15.2) on this issue which relate to reporting regularly on gender and geographic composition of staff to JCB.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
26.1. TDR to consider joining the UN System-wide Action Plan (UN-SWAP) mechanism to ensure that the integration of gender considerations is fully implemented and tracked in all relevant aspects of its work. Also, to consider liaising with the WHO's Gender, Equity and Human Rights Unit, which could offer external support to identify entry points for addressing gender and equity issues.	TDR Secretariat	✔		

Partnerships

Conclusion 27: All TDR co-sponsors are engaged in TDR's governance mechanisms but level of engagement varies after that. TDR is executed by WHO and is located in its new Science Division with TDR's Director also acting as Director of one of the Division's departments, Research for Health.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
27.1. To discuss with the World Bank how TDR might establish joint projects with the Bank, perhaps in one or two countries.	TDR Secretariat	✔		
27.2. To continue to monitor the effects, positive and negative of sharing the TDR Director with the Research for Health Department in WHO.	JCB	✔		
27.3. To clarify if the intention is that the current arrangement is temporary and that the expectation is that there will be separate Directors for TDR and the Research for Health Department.	JCB/WHO	✔		
27.4. To promote collaboration with the WHO Academy where possible recognising and tracking potential risks if the Academy's role expands as envisaged.	TDR Secretariat	✔		

Conclusion 28: TDR is collaborating closely with HRP and, to some extent, with AHPSR, particularly in the area of research capacity strengthening. There is potential for even greater collaboration, particularly if TDR decides that its focus is on systematically strengthening health research capacity independent of a specific disease or thematic focus.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
28.1. To explore ways in which collaboration and cooperation between TDR, HRP and AHPSR can be enhanced, particularly in the area of research capacity strengthening	TDR Secretariat/ HRP/ AHPSR	✔		
28.2. To explore potential for joint/merged activities on research capacity strengthening	TDR Secretariat		✔	
28.3 To discuss long-term plans for these three entities. Does it make sense to aim for merger with a focus on research capacity strengthening with scope for particular programmes focused on specific topics?[23]	JCB. WHO, funders, HRP, AHPSR			✔

[23] See also Recommendation 2.6.

Climate change

Conclusion 29: There are good opportunities for TDR to engage on the prevention and mitigation of climate change impact on health outcomes in low- and middle-income countries, but this agenda may need to be driven proactively by TDR, at least initially. Climate change does not currently feature prominently in TDR's strategy and demands from country stakeholders for capacity strengthening are not currently prioritizing climate change adaptation and health.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
29.1. To consider whether there is an appetite for developing a crosscutting thematic area on climate change mitigation in the next strategy, perhaps in a similar way to what was done for gender and intersectionality.	TDR Secretariat/ JCB		✔	

Conclusion 30: Building on the experience of working during the COVID-19 pandemic, there are opportunities to integrate measures for reducing the carbon footprint of the organization through adapting its ways of working both internally and through its partnerships. These measures would also reduce costs.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
30.1. TDR to undertake an assessment of its carbon footprint and develop strategies for reducing this by adopting low-emission practices both in its own way of working and in activities through partnerships.	TDR Secretariat	✔		
30.2. TDR to consider reporting regularly on its carbon footprint, potentially as a KPI.[24]	TDR Secretariat	✔	✔	

COVID-19

Conclusion 31: There have been lessons learned as a result of COVID-19 in highlighting particular issues, the use of virtual ways of working and TDR's potential role(s) in responding to an emergency/outbreak/ epidemic/pandemic. There is recognition that, while TDR's work may be focused on one or more diseases, its activities are building health research capacity into health systems in a resilient way which can then be pivoted and applied to different priorities as they arise.

Recommendation(s)	Action	This strategy	Timeframe Next strategy	Long-term
31.1 To present an analysis paper to the STAC/Standing Committee/JCB on lessons learned from COVID-19 and implications for future working, which should cover key issues which have been highlighted by the pandemic including the disproportionate effects on vulnerable and marginalized populations, the importance of a One Health approach and the importance of innovative thinking particularly in the context of emergencies.	TDR Secretariat	✔	✔	

[24] See also Recommendation 3.1.

Recommendation(s)	Action	Timeframe This strategy	Timeframe Next strategy	Timeframe Long-term
31.2 To present an analysis paper to the STAC/Standing Committee/JCB on lessons learned from COVID-19 and implications for future working in relation particularly to the balance between virtual and face-to-face means for TDR staff, governance structure and training activities.	TDR Secretariat	✔	✔	
31.3. To present an analysis paper to the STAC/Standing Committee/JCB which clearly identifies the role(s) TDR would (and would not) play in future emergencies/ outbreaks/epidemics/ pandemics. To then use this as the basis to clearly communicate TDR's value-added in terms of preparing for and responding to emergencies/ outbreaks/epidemics/pandemics in the next strategy.	TDR Secretariat	✔	✔	
31.4. To consider revising the current focus on disease groups, which implies that core health system research capacity strengthening is a by-product and not the explicit aim of TDR's work. Consider moving away from focus on disease groups in the long-term.	JCB			✔

Documents Cited in the Report

[1] Oxford Policy Management (2016) *TDR – Sixth External Review* available on https://www.who.int/tdr/publications/about-tdr/reviews/sixth-external-review-report.pdf (accessed 25 February 2022).

[2] WHO and TDR (2017) *TDR Strategy 2018-2023: Building the Science of Solutions* available on http://apps.who.int/iris/bitstream/handle/10665/255777/9789241512756-eng.pdf;jsessionid=319332B8B36B1813029E139607A960DD?sequence=1 (accessed 16 February 2022).

[3] WHO (2021) *WHO Science Division Strategy: Bringing the Best in Science to Health.*

[4] Zachariah, R., Maher, D., Aseffa, A., Vahedi, M., Launois, P., Khogali, M., Aslanyan, G. and Reeder, J. (2020) *Strengthening the Core Health Research Capacity of National Health Systems Helps Build Country Resilience to Epidemics: A Cross-sectional Survey* available on https://f1000research.com/articles/9-583/v2 (accessed 28 February 2022).

[5] WHO and TDR (2016) *Summary of External Review Recommendations and Secretariat Responses and Actions* available on https://www.who.int/tdr/publications/about-tdr/reviews/summary-sixth-external-review.pdf?ua=1 (accessed 1 March 2022).

[6] HERA (2019) *External Evaluation of the UNDP-UNFPA-UNICEF-WHO-World Bank Special Programme of Research, Development and Training in Human Reproduction (HRP)* 2013-2017 available on https://cdn.who.int/media/docs/default-source/hrp/hrp-evaluation-report-vol-1.pdf?sfvrsn=140faddc_6&download=true (accessed 1 March 2022).

[7] HERA (2021) *External Evaluation 2020: Alliance for Health Policy and Systems Research* available on https://www.ahpsr.org/wp-content/uploads/2021/03/Alliance-External-Evaluation-2020.pdf (accessed 1 March 2022).

[8] TDR and Inis Communication (2019) *TDR Strategic Communications Review: Project Summary Report*

[9] TDR (unpublished) *Implementation Research Training Programmes: A Global Scan*

[10] United Nations University International Institute for Global Health (2021) *Implementation Research Training Framework 2.0: Making the Whole Greater than the Parts* available on http://collections.unu.edu/view/UNU:8215 (accessed 17 February 2022).

[11] WHO and TDR (2021) *TDR Performance Framework: Measuring for Improvement* available on https://apo.who.int/publications/i/item/tdr-performance-framework-2018-2023 (accessed 17 February 2022). Note – this document was endorsed by the JCB in 2018 but then took time to be formally laid out and published.

[12] WHO and TDR (2017) Programme Budget and Workplan 2018-2019 available on https://tdr.who.int/publications/m/item/programme-budget-and-workplan-2018-2019 (accessed 28 February 2022)

[13] TDR (2019) Programme Budget and Workplan 2020-2021 available on https://tdr.who.int/publications/m/item/programme-budget-and-workplan-2020-2021 (accessed 28 February 2022)

[14] TDR (2021) Programme Budget and Workplan 2022-2023 available on https://tdr.who.int/publications/m/item/programme-budget-and-workplan-2022-2023 (accessed 28 February 2022)

[15] WHO and TDR (2019) *TDR Results 2018 Report: Measuring for Improvement* available on https://www.who.int/tdr/publications/year/2019/results-report-2018/en/ (accessed 18 February 2022).

[16] WHO and TDR (2021) *TDR Results 2019 Report: Measuring for Improvement* available on https://apps.who.int/iris/handle/10665/345888 (accessed 18 February 2022)

[17] TDR (2021) *TDR Results 2020 Report: Measuring for Improvement* available on https://tdr.who.int/publications/i/item/tdr-2020-results-report (accessed 18 February 2022)

[18] TDR (2019) *TDR Annual Report 2018: Building the Science of Solutions* available on https://www.who.int/tdr/publications/about-tdr/annual-reports/2018-annual-report/en/ (Accessed 18 February 2022)

[19] TDR (2020) *TDR Annual Report 2019: Building the Science of Solutions* available on https://www.who.int/tdr/publications/about-tdr/annual-reports/2019-annual-report/en/ (Accessed 18 February 2022)

[20] TDR (2021) *TDR Annual Report 2020: Building the Science of Solutions* available on https://apo.who.int/publications/i/item/tdr-annual-report-2020 (Accessed 18 February 2022)

[21] Casamitjana, N., Vahedi, M., Davoren, S., Kavoura, E., Tallada, J., Yamaka, S. and Launois, P. (in press) *Benefits and Barriers in a Clinical Research Competency Development Scheme for Low- and Middle-Income Countries.*

[22] For example, see TDR (2022) *"Bench to Bedside" Gets New Meaning in Global South in TDR's Flagship Research Training Programme* available on https://tdr.who.int/newsroom/news/item/21-02-2022-bench-to-bedside-gets-new-meaning-in-global-south-in-tdr-s-flagship-research-training-programme (accessed 22 February 2022).

[23] WHO (2019) *Report of the External Auditor* available on https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_39-en.pdf (accessed 23 February 2022)

[24] WHO (2021) *Human Resources: Update: Workforce Data*

[25] Ollier, L., Ormond, L. and Visser-Valfrey, M. (2011) *Interim External Review and Evaluation of the Special Programme for Research and Training on Tropical Diseases (TDR)* available on https://www.who.int/tdr/publications/about-tdr/reviews/interim-external-review-2011/en/ (accessed 23 February 2022)

[26] TDR (2021) *TDR Designated Funding Grant Policy and Procedures* TDR/POL/1.rev2021 (May).

[27] TDR (2021) *TDR Financial Update 2020-2021 and Outlook 2022-2023* presented to Standing Committee in their 110th meeting on 9-11 November 2021.

[28] TDR (2013) *TDR Risk Management Policy and Procedures* TDR/POL/2

[29] TDR (2022) *Feb 2022 Annual Portfolio Review Agenda*

[30] TDR (2022) *Feb 2022 Annual Review (All Staff) Agenda*

[31] TDR (undated) *Concept Note Template*

[32] TDR (undated *TDR Grant Application Form*

[33] WHO (2020) *Risk Management Tool: Users' Guide* Version 30 December 2020

[34] TDR (2020) *TDR Expected Results (ERs) Strategic Plans 2020-21*

[35] WHO and TDR (2012) *Performance Assessment Framework Revision 2012-2017* available on https://apps.who.int/iris/rest/bitstreams/442309/retrieve (accessed 5 March 2022).

[36] TDR (2019) *Report of the Forty-Second Session of the Joint Coordinating Board* available on https://www.who.int/tdr/about/governance/jcb/JCB42-report.pdf?ua=1 (accessed 4 March 2022).

[37] WHO, TDR and SIHI (2017) *Social Innovation in Health: Case Studies and Lessons Learned from Low- and Middle-Income Countries* available on https://www.who.int/tdr/publications/year/2017/tdr-sihi-publication-2017.pdf?ua=1 (accessed 4 March 2022).

[38] SIHI Case compendium 2015-2020 available on https://socialinnovationinhealth.org/resources/cases-country-profiles/ (accessed 4 March 2022).

[39] Improved delivery of interventions Research for Implementation Scientific Working Group Meeting (2018).

[40] TDR risk management report (2020)

[41] There was one in 2017 and there is one currently being undertaken, see *Final Survey Questionnaire for Postgraduate Alumni* (2021)

[42] Evaluation report for the WHO-EMR Regional Training Centre Institut Pasteur Tunis, Tunisia (RTC-IPT) and for the WHO-WPR Regional Training Centre Research Institute of Tropical Medicine Manila, Philippines (RITM)

[43] WHO (2020) *Ending the Neglect to Attain the Sustainable Development Goals: A Road Map for Neglected Tropical Diseases 2021–2030* available on https://apps.who.int/iris/rest/bitstreams/1326801/retrieve (accessed 5 March 2022).

[44] WHO (2014) *The End TB Strategy* available on https://www.who.int/tb/strategy/End_TB_Strategy.pdf (accessed 5 March 2022).

[45] WHO (2015) *Global Technical Strategy for Malaria 2016–2030* available on https://www.who.int/docs/default-source/documents/global-technical-strategy-for-malaria-2016-2030.pdf (accessed 5 March 2022).

[46] WHO and TDR (2012) Making a Difference: *TDR Strategic Plan 2012-2017* available on https://www.who.int/tdr/publications/strategic_plan/en/ (accessed 5 March 2022).

[47] Zachariah, R., Rust, S., Thekkur, P., Khogali, M., Kumar, A.M.V., Davtyan, K., Diro, E., Satyanarayana, S., Denisiuk, O., Van Griensven, J., Hermans, V., Dar Berger, S., Saw, S., Reid, A., Aseffa, A., Harries, A.D. and Reeder , J.C. (2020) *Quality, Equity and Utility of Observational Studies during 10 Years of Implementing the Structured Operational Research and Training Initiative in 72 Countries* Trop Med Infect Dis 2020, 5(4), 167 available on https:/doi.org/10.3390/tropicalmed5040167 (accessed 5 March 2022).

[48] Expected Results 2020-2023 Research for implementation.

[49] Camara, B.S., Delamou, A., Diro, E., El Ayadi, M. A., Béavogui, A. H., Sidibé, S., Grovogui, F. M., Takarinda, K.C., Kolié, D., Sandouno, S. D., Okumura, J., Baldé, M. D., Van Griensven, J. and Zachariah, R. (2017) *Influence of the 2014–2015 Ebola Outbreak on the Vaccination of Children in a Rural District of Guinea* available on https://dx.doi.org/10.5588%2Fpha.16.0120 (accessed 5 March 2022).

[50] WHO and TDR (2018) *Operational Guide: Using the Web-Based Dashboard: The Early Warning and Response System (EWARS) for Dengue Outbreaks* available on http://apps.who.int/iris/bitstream/handle/10665/274318/9789241514354-eng.pdf?ua=1 (accessed 5 March 2022).

[51] Benites-Valladares, D., Kroeger, A., Tejeda, G. S. and Hussain-Alkhateeb, L. (2021) *Validation of the Early Warning and Response System (EWARS) for Dengue Outbreaks: Evidence from the National Vector Control Program in Mexico* available on https://doi.org/10.1371/journal.pntd.0009261 (accessed 5 March 2022).

[52] Donoghue, M. (2015) *Review of the ESSENCE on Health Research Initiative* available on https://tdr.who.int/publications/m/item/review-of-the-essence-on-health-research-initiative (accessed 20 May 2022).

[53] Dutch Research Council website available on https://www.nwo.nl/en/researchprogrammes/tasene (accessed 5 March 2022).

[54] Small Research Grants Scheme Results & Resources 2014 – 2019 (2020)

[55] ADP (2021) *Status Report 2021* available on https://adphealth.org/upload/resource/ADP-Status-Report-2021.pdf (accessed 5 March 2022).

[56] TDR (2017) *TDR's Theory of Change Narrative*

[57] TDR (2019) *TDR Collaborations Build Regional Networks and Research Capacity to Fight TB* available on https://tdr.who.int/newsroom/news/item/22-03-2019-tdr-collaborations-build-regional-networks-and-research-capacity-to-fight-tb (accessed 8 March 2022)

[58] TDR Global (2021) *Strategies for Community Engagement.*

[59] TDR (undated) *ESSENCE on Health Research: About Us* available on https://tdr.who.int/groups/essence-on-health-research/about-us (accessed 8 March 2022).

[60] WHO (2012) The WHO Strategy on Research for Health available on https://www.who.int/phi/WHO_Strategy_on_research_for_health.pdf (accessed 9 March 2022).

[61] TDR (2021) TDR's Portfolio Prioritization Model available on https://tdr.who.int/docs/librariesprovider10/governance/portfolio-prioritization-model_rev2021.pdf?sfvrsn=e91848cb_12&ua=1 (accessed 9 March 2022). This document was developed in 2014 and last revised in 2021.

[62] TDR (2014) *TDR's Scientific and Technical Advisory Committee and Scientific Groups: Terms of Reference* available on https://tdr.who.int/docs/librariesprovider10/governance/stac_swg_tor_2017.pdf?sfvrsn=a576416a_5 (accessed 9 March 2022)

[63] TDR (2017) *Standard Operating Procedures: Scientific Working Groups and Other External Scientific/Technical Reviews of TDR Projects*

[64] TDR (2021) *Draft Annotated Agenda: Joint Meeting of the Scientific Working Groups for Research Capacity Strengthening and Research for Implementation, 22 October 2021*

[65] TDR and WHO (2019) *Ethics in Implementation Research* available on https://www.who.int/tdr/publications/year/2019/ethics-in-ir-course/en/ (accessed 9 March 2022). There are participant's and facilitator's guides.

[66] Science Connect (2022) *Plan S: Making Full and Immediate Open Access a Reality* available on https://www.coalition-s.org/ (accessed 9 March 2022).

[67] WHO and TDR (2020) *TDR Intersectional Gender Research Strategy* available on https://apps.who.int/iris/bitstream/handle/10665/332288/9789240005068-eng.pdf?ua=1 (accessed 15 March 2022).

[68] WHO (2021) *Evaluation of the Integration of Gender, Equity and Human Rights in the Work of the World Health Organization* available on https://cdn.who.int/media/docs/default-source/documents/about-us/evaluation/gehr-report-september-2021.pdf?sfvrsn=fc8a1c04_1&download=true (accessed 15 March 2022) – see particularly p16.

[69] TDR (2018) *Report of the Forty-First Session of the Joint Coordinating Board* available on https://www.who.int/tdr/about/governance/jcb/JCB41-report-rev1.pdf?ua=1 (accessed 15 March 2022).

[70] UN Women (undated) *Key Tools and Resources: Performance Indicator 1 on Strategic Planning Gender-Related SDG Results* available on https://www.unwomen.org/en/how-we-work/un-system-coordination/promoting-un-accountability/key-tools-and-resources#UN-SWAP (accessed 15 March 2022).

[71] TDR (2020) *Incorporating Intersectional Gender Analysis into Research on Infectious Diseases of Poverty: A Toolkit for Health Researchers* available on https://www.who.int/tdr/publications/year/2020/tdr-intersectional-gender-toolkit/en/ (accessed 15 March 2022).

[72] ADP (2019) *The Gender Dimensions of Neglected Tropical Diseases* available on https://adphealth.org/upload/resource/2523_ADP_Discussion_Paper_NTDs_211119_web.pdf (accessed 15 March 2022).

[73] WHO, TDR and TDR Global (2021) *Women in Science* available on https://apps.who.int/iris/bitstream/handle/10665/339981/9789240021891-eng.pdf?ua=1 (accessed 15 March 2022).

[74] Zachariah, R., Dar Berger, S., Thekkur, P., Khogali, M., Davtyan, K., Kumar, A. M. V., Satyanarayana, S., Moses, F., Aslanyan, G., Aseffa, A., Harries, A.D. and Reeder, J. (2020) *Investing on Operational Research Capacity Building for Front-Line Health Workers Strengthens Countries' Resilience to Tackling the COVID-19 Pandemic* Trop. Med. Infect. Dis **2020**, 5, 118 available on https://www.mdpi.com/2414-6366/5/3/118 (accessed 3 March 2022).

[75] TDR (2021) *One Health Handbook Published for Tackling Vector-Borne Diseases* available on https://tdr.who.int/newsroom/news/item/09-12-2021-one-health-handbook-published-for-tackling-vector-borne-diseases (accessed 15 March 2022).

[76] WHO (2021) *Second Round of the National Pulse Survey on Continuity of Essential Health Services during the COVID-19 Pandemic* available on https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS-continuity-survey-2021.1 (accessed 1 March 2022). This study showed that mental health services and services for NTDs had been particularly badly affected.

[77] The Global Fund (2021) *Results Report 2021* available on https://www.theglobalfund.org/media/11304/corporate_2021resultsreport_report_en.pdf (accessed 1 March 2022)

[78] Yedilbayev, A., Davtyan, H., Korotych, O. and Dadu, A. (2021) *Operational Research to Tackle TB in Eastern Europe and Central Asia: Moving Forward during the COVID-19 Pandemic* The Journal of Infection in Developing Countries. 2021;15(09.1):1S-2S. Available on https://pubmed.ncbi.nlm.nih.gov/34609953/ (accessed 3 March 2022).

[79] Kuchenmuller, T., Reeder, J., Reveiz, L., Tomson, G., El-Jardali, F., Lavis, J., Rashidian, A., Reinap, M., Grove, J. and Swaminathan, S. (2021) *COVID-19: Investing in Country Capacity to Bridge Science, Policy and Action* BMJ Global Health, 6: e005012, 2021. Available on https://gh.bmj.com/content/6/2/e005012 (accessed 3 March 2022).

[80] Chackalackal, D. J., Al-Aghbari, A. A., Jang, S. Y., Ramirez, T. R., Vincent, J., Joshi, A., Banjara, M. R., Asaga, P., Sanchez, R. C., Carrillo, M. A., Villa, J. M., Monsalve, S. D., and Kroeger, A. (2021) *The COVID-19 Pandemic in Low- and Middle-Income Countries, who Carries the Burden? Review of Mass Media and Publications from Six Countries* Pathog Glob Health. 2021 May;115(3):178-187 Available on https://pubmed.ncbi.nlm.nih.gov/33657984/ (accessed 3 March 2022).

[81] Davtyan, H., Davtyan, K., Harries, A.D., Reid, A., Aslanyan, G., Khogali, M. and Zachariah, R. (2021) *Going Virtual for Research Training during the COVID-19 Pandemic and Beyond: e-SORT IT* Journal of Infection in Developing Countries 15 (9): 3S-6S Available on https://doi.org/10.3855/jidc.15057 (accessed 3 March 2021).

[82] Wu, S., Reis, A. A., Pujari, S., Muneene, D. and Reeder, J (2021) *Leveraging Artificial Intelligence to Assist the Ethical and Science-Based Distribution of COVID-19 Vaccines* J Global Health, 11:03124, 2021 Available on https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8645219/ (accessed 3 March 2022).

[83] Guerin, P. J., Singh-Phulgenda, S. and Strub-Wourgraft, N. (2020) *The Consequence of COVID-19 on the Global Supply of Medical Products: Why Indian Generics Matter for the World?* Available on https://doi.org/10.12688/f1000research.23057.1 (accessed 3 March 2022).

[84] Moscibrodzki, P., Li, J., Peeling, R.W., Halpaap, B., Cuervo, L.G., Blas, M. M., Joban, N., Labarda, M., Tang, W., and Tucker, J. D. (2021) *Social Innovation in Health: A Critical but Overlooked Component of the COVID-19 Pandemic Response* BMJ Innovations 2021;7:523-525 Available on http://dx.doi.org/10.1136/bmjinnov-2021-000703 (accessed 3 March 2022).

[85] Mao, W. H., Ogbuoji, O., Watkins, D., Bharali, I., Boateng, E., Diab, M. M., Dwomoh, D., Jamison, D. T., Kumar, P., McDade, K. K., Nonvignon, J., Ogundeji, Y., Zeng, F. G., Zimmerman A. and Yamey G. (2021) *Achieving Global Mortality Reduction Targets and Universal Health Coverage: The impact of COVID-19* Plos Medicine 18 (6): 17 Available on https://doi.org/10.1371/journal.pmed.1003675 (accessed 3 March 2022)

Annex 1: Terms of Reference

Introduction

The 7th external review is commissioned by TDR's Joint Coordinating Board (JCB) as a mid-term evaluation of TDR's 2018-2023 Strategy. The objective is to assess how the work programme is progressing in the current strategy and to inform TDR's future direction and focus for 2024-2029. The report will be reviewed by the Standing Committee in April 2022 and the JCB in June 2022. The findings of the review will inform the development of the next strategy 2024-2029. This new strategy will be reviewed by the Scientific and Technical Review Committee (STAC) in March 2023 and submitted for approval to the JCB in June 2023.

TDR's unique value is supported by its integration of three strategic priority areas: research for implementation, research capacity strengthening and global engagement. TDR's current strategy focuses on research for implementation and improving policies, practices and access to health interventions in disease endemic countries, in line with TDR's vision: "The power of research and innovation will improve the health and well-being of those burdened by infectious diseases of poverty."

Purpose of the review

External reviews are commissioned by the JCB every five to seven years for both accountability and continuous performance improvement purposes. These reviews are conducted to provide an independent and in-depth understanding of the Programme's relevance and performance and to set future strategic directions. They provide an objective measure for funders to inform their future investment decisions. Formative, they identify opportunities for continuous performance improvement, through analysis of lessons learnt and identification of necessary readjustments in order to improve the Programme's effectiveness and efficiency in implementing the current strategy.

Scope and focus

The 7th External Review will focus on the five main evaluation criteria[25] i.e. relevance, effectiveness, efficiency, impact and sustainability; and on the quality of science. In addition, it will inform TDR's strategic directions for 2024 to 2029.

The scope of this review encompasses TDR's strategic priority areas and the Programme structure designed to implement TDR's 2018-2023 strategy and future directions, including the following areas:

- Focus on research for implementation
- Research capacity strengthening
- Global engagement
- TDR's revised structure at the end of the WHO transformation process
- Future direction 2024-2029

[25] As per the United Nations Evaluation Group norms and standards for evaluation (rev 2016)

The proposed broad questions to be addressed by the review are formulated to cover five key evaluation criteria, together with scientific quality:

Relevance

To what extent is TDR's added value in convening, consensus building, establishing priorities and promoting/supporting intervention and implementation research and research capacity for infectious diseases of poverty still needed in its current form?

- To what extent does TDR still address important challenges, needs and gaps?
- Are there any unnecessary duplications and how complementary are TDR's efforts to the efforts of others working in the field of global health research and infectious diseases of poverty?
- How effectively does TDR work with others in the field and its stakeholders? To what extent do partners benefit from TDR interaction?
- How is the global health architecture changing considering the COVID-19 pandemic, and how will the change affect areas of research and the role that TDR should play in the new environment?
- Is TDR sufficiently flexible to retain relevance and respond to changes in the environment?
- Is TDR fit to adapt to the changing and evolving values of partners (including the co-sponsors)?
- How should TDR support implementation research and capacity to help in preparedness and rollout of public health interventions resulting from pandemics and other major outbreaks?
- Have the new TDR Programme organizational structure and strategic directions, set in 2018, made the organization more fit for purpose?
- To which extent have the recommendations of the 6th external review been addressed?
- How does TDR make future plans? How transparent, inclusive and consultative is the process followed?

Effectiveness

How effective has TDR been in addressing the technical and policy recommendations of its scientific working groups, STAC, the Standing Committee and JCB?

- Has TDR been effective in leading and supporting implementation research?
- Is TDR on track for achieving its proposed objectives and planned outputs in line with the 2018-2023 strategy and the Performance Framework targets?
- If achieved, how likely is it that TDR objectives will deliver TDR's goals and that the activities will deliver their objectives?
- How does TDR's work at global, regional and country level contribute to reducing the burden of infectious diseases of poverty, and to building capacity in low- and middle-income countries?
- In what ways has TDR been particularly effective and particularly ineffective in the field and why?
- What are the specific limitations of TDR that should be addressed in the short, medium and long term?
- Are advisory committees and working groups sufficiently independent with mechanisms in place to ensure that 'interest groups' cannot influence funding decisions? Are the current inter-relationship and membership of the committees best structured to ensure TDR can deliver on its objectives?
- What key internal and external factors have been the most pivotal in influencing the TDR's relevance, effectiveness and efficiency?

Efficiency

Are the three strategic priority areas and the revised Programme structure and portfolio appropriate and cost-efficient to deliver on the strategy?

- Is TDR expenditure optimally balanced between the different activities?
- How fit for purpose are the internal systems for achieving the TDR goals?

- How fit for purpose is the internal structure for achieving the TDR goals?
- How balanced is TDR's personnel structure in terms of geographical and gender representation?
- How fit for purpose are risk management strategies for achieving the TDR goals?

Impact

What major outcomes and impact has TDR contributed to in relation to the health research landscape for infectious diseases of poverty?

- What are TDR's main achievements – including tangible, perceived, intended, expected and unexpected?
- What are some of the benefits where TDR has worked in partnership with others, including organizations that are members of the Standing Committee or the JCB?
- How can TDR further improve its partnerships with other WHO research entities for increased joint impact?

Sustainability

To what extent are TDR outcomes sustainable?

- Are the governance and the funding pattern adequately supporting TDR's future sustainability (level and type of funding)?
- What are the opportunities for TDR's further collaboration with WHO's Science Division and regional offices?
- What are the elements that would enhance the sustainability of TDR's achievements?
- Do partnerships contribute to sustainability? If yes how, and if not, why not?
- What role could the co-sponsors and Board members play in the sustainability of TDR?

Quality of science

- Is scientific decision-making independent and rigorous?
- Is TDR's research of the highest quality? If not, what can be done to improve this?
- How effectively does TDR survey the wider research environment to ensure there is minimal duplication of effort?
- What steps are in place to ensure that all TDR commissioned/funded work is of the highest quality and is completed in time and within budget?
- Are project portfolios managed effectively in each operational unit and within TDR overall?
- How are issues around intellectual property and open access being handled?
- To what extent is TDR's funded work published in peer-reviewed publications and in open access? Which suitable measures should TDR use to assess the impact of peer-reviewed publications from its funded work? What are some suitable actions to achieve 100% publications in open access?

Future strategic directions 2024-2029

- What should TDR's unique contribution be to the Sustainable Development Goals in this timeframe, in the run-up to 2030?
- What would TDR's unique value be in 2024-2029 to play a critical role in the 2030 global health research agenda?
- What would be the ultimate role and approach of TDR? What should be the optimal focus and organizational arrangement of TDR to achieve its goals as will be outlined in the future directions?
- Are specific shifts needed to make a bigger impact on preventing infectious diseases of poverty?

Stakeholder participation

The review should involve a range of TDR's stakeholder representatives to better review expectations, achievements and perceptions of the Programme. It is recommended that interviewees include members of the TDR Secretariat, members of TDR's governing bodies and scientific advisory committee/groups, co-sponsors, beneficiaries in disease endemic and developed countries, partners in the public and private sectors, product development partnerships (PDPs) and donors.

TDR 7th External review methodology

The review methodology will be refined by the reviewers. The evaluation firm/consultant engaged in the review must have a good understanding of TDR and how it functions and be able to propose methodologies that would lead to recommendations specific to TDR, beyond the standard model used in this field of work. Methodologies may include, although is not limited to, the following:

- Analysis of existing documents such as: the TDR Performance Framework, plans, portfolio of projects, annual reports, mapping of grants awarded in the context of the 2018-2023 strategy and project evaluation reports.
- Interviews with stakeholders on TDR's perceived role, relevance and issues
- Interviews with TDR and WHO staff.

Deliverables and timelines

- Proposals received from bidders (early September 2021)
- Proposals shortlisted and interviews with shortlisted bidders (September 2021)
- Proposal selection by the TDR Standing Committee and the Joint Coordinating Board (October/November 2021)
- An external review plan drafted by the selected team and agreed by the Standing Committee (including objectives, approach, main elements to be examined, evaluation questions, methodology, timeline and milestones, etc.). (November 2021)
- Conduct of the review (Dec 2021-Mar 2022)
- Review of high-level draft findings and conclusions to ensure factual validity. (mid-March 2022)
- A draft external review report to be presented and discussed with the Standing Committee, including an analysis, conclusions and recommendations. (mid-April 2022)
- The final report to be submitted to TDR. (early May 2022)

Seventh External Review team

Standing Committee members will provide oversight of the review on behalf of the JCB. The review will be undertaken by a team of selected experts experienced in programme evaluation, including public health and United Nations organizations (including TDR co-sponsors), and with a broad knowledge of health research, related capacity strengthening and knowledge management. The review team will be selected from a list of potential bidders in consultation with the Standing Committee.

Annex 2: People Interviewed

TDR staff

Abraham Aseffa, Unit Head
Garry Aslanyan, Manager Partnerships and Governance
Christine Coze, Governance and Donor Relations
Tina Donagher, Team Assistant
Caroline Easter, Programme and Finance Officer
Florence Fouque, Scientist
Annabel Francois, Programme and Finance Assistant
Daniel Hollies, Team Assistant
Najoua Kachouri Aboudi, Team Assistant
Edward Kamau, Scientist
Mohammed Khogali, Scientist
Makiko Kitamura, Communication Officer
Annette Kuesel, Scientist
Pascal Launois, Scientist and Acting Unit Head
Abdel Masoudi, Assistant Programme Management
Corinne Merle, Scientist
Mihail Mihut, Portfolio Management Officer and Acting Unit Head
Mariam Otmani del Barrio, Scientist
Debra Pedrazzoli, Consultant
Bernadette Ramirez, Scientist
John Reeder, Director
Izabela Suder-Dayao, e-TDR and Website
Robert Terry, Manager Research Policy
Mahnaz Vahedi, Scientist
Vanessa Veronese, Consultant
Michelle Villasol-Salvador, Team Assistant
Rony Zachariah, Scientist

JCB members

Mayte Bejarano, Sweden
Detlef Böcking, Germany
Kjetil Bordvik, Norway
Rodrigo Corrêa Oliveira, Fiocruz
Hannes Dekeyser, Belgium
Clarisse Geier, Luxembourg
Ayat Haggag, Egypt
Kenji Hirayama, Japan
Tomás López-Peña Ordoñez, Spain
Jürgen May, Germany
Dirk Mueller, UK
Modest Mulenga, Zambia
Bernard Pécoul, Drugs for Neglected Diseases Initiative (DNDi)
Babatunde Salako, Nigeria
Teresa Soop, Sweden and Chair of HRP Board
Ning Xiao, China

JCB observers

John Dusabe-Richards, International Development Research Centre
Paulo Ferrinho, Portugal
Hans-Eckhardt Hagen, Fondation Mérieux
Rijnart Janneke, Netherlands
Thy Pham, Bill and Melinda Gates Foundation
Pierre Quiblier, United Nations Environment Programme
David Reddy, Medicines for Malaria Venture
Richard Vaux, Fondation Mérieux
Kathleen Victoir, Pasteur International Network Association

Standing Committee including co-sponsors

Vic Arendt, Luxembourg
Tahir Bin Aris, Malaysia
Mandeep Dhaliwal, UNDP
Toomas Palu, World Bank
Robert Scherpbier, UNICEF
Soumya Swaminathan, WHO
Nazni Wa, Malaysia

Advisory committees

Charles Mgone, Chair of the Scientific and Technical Advisory Committee
Catherine Molyneux, Co-Chair of the Research for Implementation Scientific Working Group
Alwyn Mwinga, Co-Chair of the Research Capacity Strengthening Scientific Working Group
Stephen Bertel Squire, Co-Chair of the Research for Implementation Scientific Working Group

WHO regional office focal points

Elkhan Gasimov, WHO European Region
Tauhidul Islam, WHO Western Pacific Region
Ahmed Mandil, WHO Eastern Mediterranean Region
Joseph Chukwudi Okeibunor, WHO African Region
Freddy Perez, WHO Region of the Americas
Siswanto, WHO South-East Asia Region

WHO departments and programmes

Pedro Alonso, Global Malaria Programme
Ian Askew, HRP
Gautam Biswas, Control of Neglected Tropical Diseases Department
Agnès Buzyn, WHO Academy
Abdul Ghaffar, AHPSR
Teresa Kasaeva, Global TB Programme
Brama Koné, Climate Change and Health
Craig Lissner, HRP

Partners and other donors

Pascale Allotey, UN University, Malaysia
Carlos Alberto Rojas Arbelaez, Universidad de Antoquia, Medellin, Colombia
Phyllis Dako-Geyke, School of Public Health, University of Ghana
Ejigu Asmamaw Dawit, Faculty of Medicine, Addis Ababa, Ethiopia
Philippe Guerin, Infectious Diseases Data Observatory
Beatrice Halpaap, Social Innovation for Health Initiative
Anthony Harries, Center for Operational Research, International Union against TB and Lung Disease
Trudie Lang, Global Health Network and University of Oxford
Yodi Mahendradhata, Gadja Mada University, Indonesia
Thabi Maitin, South African Medical Research Council
Michael Makanga, The European and Developing Countries Clinical Trials Partnership
Laura Merson, Infectious Diseases Data Observatory
Francis Moses, Ministry of Health, Sierra Leone
Val Snewin, UK National Institute for Health Research

Individual trainees and grantees

Phyllis Awor, Makerere University School of Public Health, Uganda
Oumou Younoussa Bah-Sow, Hôpital National Ignace Deen, Conakry, Guinea
Leo Braack, Malaria Consortium Asia
Maria Isabel Echavarria Mejia, Centro Internacional de Entrenamiento e Investigaciones Medicas
Razia Fatima, National TB Control Programme, Ministry of Health, Pakistan
Paul Gwakisa, University of Agriculture Morogoro, Tanzania
Margaret Gyapong, Centre for Health Policy and Implementation Research, Ghana
Wilfried Mutombo Kalonji, National Sleeping Sickness Control Program, DRC
Chandani Kharel, HERD International
Muhammad Homayoon Manchehr, Ministry of Public Health, Afghanistan
Dinesh Mondal, International Centre for Diarrhoeal Disease Research, Bangladesh
Bakary Sanneh, Ministry of Health, Gambia

Annex 3: Documents Reviewed

This annex seeks to list all documents identified and reviewed for the seventh review. They are listed in groupings which were established only for the purpose of the review. Not all documents here appear in the numbered list at the end of the report as that only includes those documents directly referred to in the report. Where a document in this annex is listed in that list, the number used is given at the end of the entry. This is in blue and in square brackets as in the main text. For ease of identification, those numbers are also shown in bold in this annex. These numbers were allocated based on the order in which a document is referenced in the main text.

General documentation

- TDR website https://tdr.who.int/
- WHO Science Division Strategy: Bringing the Best in Science to Health, Draft March 2021 **[3]**
- The WHO Strategy on Research for Health, 2012, https://apps.who.int/iris/rest/bitstreams/110135/retrieve **[60]**
- Ending the Neglect to Attain the Sustainable Development Goals: A Road Map for Neglected Tropical Diseases 2021–2030, WHO, 2020 https://apps.who.int/iris/rest/bitstreams/1326801/retrieve **[43]**
- The End TB Strategy, WHO, 2014 https://apps.who.int/iris/bitstream/handle/10665/331326/WHO-HTM-TB-2015.19-eng.pdf **[44]**
- Global Technical Strategy for Malaria 2016–2030, WHO, 2015 https://www.who.int/docs/default-source/documents/global-technical-strategy-for-malaria-2016-2030.pdf **[45]**
- Ethics in Implementation Research, TDR and WHO, 2019 https://apps.who.int/iris/rest/bitstreams/1236561/retrieve **[65]**
- Evaluation of the Integration of Gender, Equity and Human Rights in the Work of the World Health Organization, WHO, 2021, https://cdn.who.int/media/docs/default-source/documents/about-us/evaluation/gehr-report-september-2021.pdf **[68]**
- Plan S: Making Full and Immediate Open Access a Reality, Science Connect, 2022 https://www.coalition-s.org/ **[66]**
- Key Tools and Resources: Performance Indicator 1 on Strategic Planning Gender-Related SDG Results, UN Women (undated) https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/How%20We%20Work/UNSystemCoordination/UN-SWAP/UN-SWAP-2-TN-PI01-Strategic-planning-SDG-results-en.pdf **[70]**

External reviews

- First External Review, Dec 1980, https://tdr.who.int/docs/librariesprovider10/meeting-reports/tdr-jcb(5)-82-6-eng-pdf.pdf?sfvrsn=710978a5_0&download=true
- Second external Review, Dec 1987, https://tdr.who.int/docs/librariesprovider10/meeting-reports/tdr-jcb(11)-88-6-rev-1-eng-pdf.pdf?sfvrsn=a6d9703d_0&download=true
- Third External Review of TDR, Oct 1998, https://tdr.who.int/docs/librariesprovider10/meeting-reports/3-external-review-pdf.pdf?sfvrsn=35e3292b_0&download=true
- Fourth External review of TDR, May 2006, https://tdr.who.int/docs/librariesprovider10/meeting-reports/4-external-review-full-pdf.pdf?sfvrsn=354b83fb_0&download=true
- Interim External Review and Evaluation of TDR, Dec 2011, https://tdr.who.int/docs/librariesprovider10/meeting-reports/5th-interim-external-review.pdf?sfvrsn=5c38f3d1_5&download=true **[25]**

- Sixth External Review Final External Review Report, May 2016, https://www.who.int/tdr/publications/about-tdr/reviews/sixth-external-review-report.pdf **[1]**
- 6th External Review Technical and Financial Proposal, Sept 2015
- TDR/JCB39/16.8 39th Session Summary of external review recommendations and secretariat responses and actions, June 2016 **[5]**
- TDR Strategic Communications Review: Project Summary Report, June 2019 **[8]**
- Seventh External Review of TDR DRAFT Terms of Reference of the planned external review, June 2021, https://tdr.who.int/docs/librariesprovider10/governance/jcb44/jcb44-item-8.3---7th-external-review-tors.pdf?sfvrsn=7b59619c_5

Annual reports

- TDR Annual Report, 2018, https://apps.who.int/iris/rest/bitstreams/1236545/retrieve **[18]**
- TDR Annual Report, 2019, https://apps.who.int/iris/rest/bitstreams/1274222/retrieve **[19]**
- TDR Annual Report, 2020, https://apps.who.int/iris/rest/bitstreams/1351845/retrieve **[20]**

Reviews of other research entities

- External evaluation 2020, Alliance for Health Policy and Systems Research, Feb 2021, https://ahpsr.who.int/docs/librariesprovider11/publications/alliance-external-evaluation-2020.pdf **[7]**
- External evaluation of the UNDP/UNFPA/UNICEF/WHO-World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP) 2013-2017, March 2019 Vol. 1 https://cdn.who.int/media/docs/default-source/hrp/hrp-evaluation-report-vol-1.pdf and Vol. 2 https://cdn.who.int/media/docs/default-source/hrp/hrp-evaluation-report-vol-2.pdf **[6]**
- Activities of AHPSR, HRP and TDR related to Strengthening Research Capacity in Implementation Research (2019-mid 2021), Dec 2021

Theory of change

- AHSPR/HRP/TDR Joint Theory of Change for Strengthening Research Capacity in Implementation Research, 2019
- ToC Logframe AHSPR/HRP/TDR, May 2019
- Theory of Change, TDR, 2012
- TDR's Theory of Change Narrative 2017 **[56]**

Programme management and finance

- PIM workplan (2022-2023)

Strategies

- TDR Strategic Plan: Making a difference 2012-2017, 2012, https://tdr.who.int/publications/i/item/2012-06-27-making-a-difference-tdr-strategic-plan-2012-2017 **[46]**
- TDR strategy 2018-2023: Building the science of solutions, June 2017 https://apps.who.int/iris/rest/bitstreams/1086169/retrieve **[2]**
- TDR Expected Results (ERs) Strategic Plans 2020-21, February 2020 **[34]**
- TDR Intersectional Gender Research Strategy, 2020, https://apps.who.int/iris/bitstream/handle/10665/332288/9789240005068-eng.pdf **[67]**

Performance framework

- TDR performance assessment framework: revision - 2012-2017, Jun 2013 TDR performance assessment framework: revision - 2012-2017, Jun 2013 https://apps.who.int/iris/rest/bitstreams/442309/retrieve **[35]**
- TDR performance framework 2018-2023, Oct 2021, https://apps.who.int/iris/rest/bitstreams/1376575/retrieve **[11]**
- Results chain

Portfolio prioritization

- TDR's Portfolio Prioritization Model, 2021 https://tdr.who.int/docs/librariesprovider10/governance/portfolio-prioritization-model_rev2021.pdf **[61]**

Results reports

- TDR 2018 Results Report, July 2019 https://tdr.who.int/docs/librariesprovider10/meeting-reports/2018-results-report-pdf.pdf?sfvrsn=1fe17e64_2&download=true **[15]**
- TDR 2019 results report, June 2021 https://apps.who.int/iris/rest/bitstreams/1376579/retrieve **[16]**
- TDR 2020 results report, Sept 2021 https://tdr.who.int/docs/librariesprovider10/meeting-reports/2020_results_report_web.pdf?sfvrsn=a295352e_7&download=true **[17]**

Financial reports

- TDR Financial management report 2018 and outlook 2019-2021, 2019 https://tdr.who.int/docs/librariesprovider10/about-tdr/financial_report_2018_outlook_2019-2021.pdf
- TDR Financial management report 2018-2019 Outlook 2020-2023, 2020 https://tdr.who.int/publications/m/item/financial-management-report-2018-2019-and-outlook-2020-2023
- TDR Financial management report 2020 and outlook 2021-2023, 2021 https://tdr.who.int/docs/librariesprovider10/meeting-reports/financial_report_2020_outlook_2021-2023_web.pdf

Risk managemet reports

- TDR/JCB42/19.5 42nd Session, TDR risk management report 2018, May 2019 https://tdr.who.int/docs/librariesprovider10/governance/jcb42/jcb42_item4.4_risk_management_report.pdf
- TDR/JCB43/20.7 43rd Session, TDR risk management report 2019, May 2020 https://tdr.who.int/docs/librariesprovider10/governance/jcb43/jcb43_item_8b_risk_management_report.pdf
- TDR/JCB44/21.8 44th Session, TDR risk management report 2020, May 2021 https://tdr.who.int/docs/librariesprovider10/governance/jcb44/jcb44-item-5d---risk-management.pdf **[40]**
- TDR/STAC44/22.7 44th Session, TDR risk management report 2021, Draft Feb2022

Risk management: other

- Feb 2022 Annual Portfolio Review Agenda Management group meeting, Feb 2022 **[29]**
- Feb 2022 Annual Review (All staff) Agenda, Feb 2022 **[30]**
- Concept Note Template: Form to be used for grant proposals and projects as relevant [**31]**
- TDR Grant application form **[32]**
- Risk Register list, Feb 2022

- TDR/POL/2 Risk Management Policy and procedures, Jan 2013 **[28]**
- Risk Management Tool: Users' Guide, Dec 2020, WHO **[33]**

Other financial information

- A72/39, Report of the External Auditor: Report by the Director-General, May 2019, WHO https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_39-en.pdf **[23]**
- TDR financial update 2020-2021 and outlook 2022-2023 110th Meeting of the TDR Standing Committee (SC110), Nov 2021 **[27]**
- TDR 2020-2021 revised planned costs and implementation at 30 September 2021, Excel
- TDRs Implementation @06DEC2021, Excel

Programme budget and workplans

- Programme Budget and Workplan 2018-2019 https://tdr.who.int/docs/librariesprovider10/about-tdr/tdr-programme-budget_2018-19-(web-version).pdf **[12]**
- Programme Budget and Workplan 2020-2021 https://tdr.who.int/docs/librariesprovider10/about-tdr/tdr_programme_budget_2020-21.pdf **[13]**
- Programme Budget and Workplan 2022-2023 https://tdr.who.int/docs/librariesprovider10/meeting-reports/programme-budget-and-workplan-2022-2023.pdf **[14]**

Other policies and guidance

- TDR/POL/1.rev TDR Designated Funding Grant Policy and Procedures, May 2021 **[26]**
- TDR Photography Guidance, Apr 2020, PowerPoint

Human resources

- Harmonized selection process: Longer-term positions for internationally recruited staff in the professional and higher-level categories, March 2018, WHO
- Human resources: update Workforce data As at 31 July 2021, Nov 2021 https://cdn.who.int/media/docs/default-source/human-resources/eb150_hr-update-tables_january-to-july-2021.pdf **[24]**
- WHO HQ gender split PowerPoint (2012-2020)
- The Special Programme for Research and Training in Tropical Diseases (TDR) –2022-23 HR Planning, Jan 2022
- TDR staff list as at 3 Feb 2022
- TDR Succession Planning Policy and Procedures, Draft 2021

Research & Development Pooled Fund

- Pooled Fund to support Research and Development Demonstration Projects Technical Report
- A70/22, Follow-up of the report of the Consultative Expert Working Group on Research and Development: Financing and Coordination Report by the Director-General, 2017 https://apps.who.int/iris/rest/bitstreams/1153044/retrieve

Quality assurance

- Internal Control Framework, Nov 2013
- TDR's Quality Assurance Process and Documents, diagram in PDF
- SOPs for clinical monitoring, general administration, project management and quality assurance

Strategic priority area: Research (incl. IIR & VES for 2018)

- IIR Plan 2018-2019
- VES Plan 2018-2019
- IMP Plans 2020-2021 and 2023-2023
- Annual Report 2018 Intervention and Implementation Research, Feb 2019, https://tdr.who.int/docs/librariesprovider10/about-tdr/ar2018_iir.pdf
- Annual Report 2018 Vectors, Environment and Society, Jan 2019 https://tdr.who.int/docs/librariesprovider10/about-tdr/ar2018_ves.pdf
- Annual Report 2019 Research for Implementation, 2020 https://tdr.who.int/publications/m/item/annual-report-2019-research-for-implementation
- Annual report 2020: Research for implementation, May 2021 https://tdr.who.int/docs/librariesprovider10/meeting-reports/ar2020_imp_final.pdf
- Annual report 2021: Research for implementation, Draft 2022
- Structured Operational Research and Training Initiative (SORT IT) for improving public health, Rony Zachariah (for SORT IT team), 2021, PowerPoint
- "Bench to Bedside" Gets New Meaning in Global South in TDR's Flagship Research Training Programme, 2022 https://tdr.who.int/newsroom/news/item/21-02-2022-bench-to-bedside-gets-new-meaning-in-global-south-in-tdr-s-flagship-research-training-programme **[22]**
- TDR Collaborations Build Regional Networks and Research Capacity to Fight TB, 2019, https://tdr.who.int/newsroom/news/item/22-03-2019-tdr-collaborations-build-regional-networks-and-research-capacity-to-fight-tb **[57]**
- One Health Handbook Published for Tackling Vector-Borne Diseases, 2021 https://tdr.who.int/newsroom/news/item/09-12-2021-one-health-handbook-published-for-tackling-vector-borne-diseases **[75]**
- Expected Results 2020-2023 Research for implementation **[48]**

Strategic priority area: Research capacity strengthening

- RSC plans 2018-2019, 2020-2021 and 2022-2023
- Annual Report 2018 Research Capacity Strengthening, Jan 2019 https://tdr.who.int/docs/librariesprovider10/about-tdr/ar2018_rcs.pdf
- Annual Report 2019 Research Capacity Strengthening, Jan 2020 https://tdr.who.int/docs/librariesprovider10/about-tdr/ar2019_rcs.pdf
- Annual Report 2020 Research Capacity Strengthening, May 2021 https://tdr.who.int/docs/librariesprovider10/meeting-reports/ar2020_rcs_final.pdf
- Annual Report 2021 Research Capacity Strengthening, Draft Dec 2021
- Theory of Change for the Research Capacity Strengthening (RCS) activities of the Special Programme for Research and Training in Tropical Diseases (TDR), 2018
- Implementation Research Training Framework 2.0: Making the whole greater than the parts A report for WHO-TDR prepared by United Nations University International Institute for Global Health **[10]**
- Implementation Research Training Programmes: A Global Scan Final Report prepared for WHO-TDR, 2020 **[9]**
- TDR Research Capacity Strengthening Report of the Scientific Working Group, October 2021, Geneva
- Final Survey postgrads, Draft 2021 **[41]**
- Benefits and Barriers in a Clinical Research Competency Development Scheme for Low- and Middle-Income Countries (to be published) **[21]**

- Evaluation Report of the WHO-WPR Regional Training Center Research Institute of Tropical Medicine (RITM) Manila, Philippines, 2019 **[42]**
- Evaluation Report: WHO-EMR Regional Training Center Institut Pasteur Tunis (RTC-IPT) Tunis, Tunisia, 2020 **[42]**

Strategic priority area: Global engagement

- Global Engagement Plans 2020-2021 and 2022-2023
- Annual Report Global Engagement 2018 https://tdr.who.int/publications/m/item/annual-report-2018-global-engagement
- Annual Report Global Engagement 2019 https://tdr.who.int/docs/librariesprovider10/about-tdr/ar2019_ge.pdf
- Annual Report Global Engagement 2020 https://tdr.who.int/docs/librariesprovider10/meeting-reports/ar2020_ge_final.pdf
- Annual Report Global Engagement 2021, Draft 2022
- Executive Summary TDR Global: Strategies for Community Engagement **[58]**
- TDR Global Portal https://profiles.tdr-global.net/
- Women in Science, A storytelling show case, 2021 https://iris.who.int/handle/10665/339981 **[73]**
- Small Research Grants Scheme: Results & Resources 2014 – 2019 **[54]**
- Social Innovation in Health: Case Studies and Lessons Learned from Low- and Middle-Income Countries, WHO, TDR and SIHI, 2017 https://apps.who.int/iris/rest/bitstreams/1090126/retrieve **[37]**
- SIHI Case compendium 2015-2020 https://socialinnovationinhealth.org/resources/cases-country-profiles/ **[38]**
- ESSENCE on Health Research: About Us https://tdr.who.int/groups/essence-on-health-research/about-us **[59]**
- Review of the ESSENCE on Health Research Initiative, 2015, https://tdr.who.int/publications/m/item/review-of-the-essence-on-health-research-initiative **[52]**

Gender

- TDR (2020) *Incorporating Intersectional Gender Analysis into Research on Infectious Diseases of Poverty: A Toolkit for Health Researchers* available on https://www.who.int/tdr/publications/year/2020/tdr-intersectional-gender-toolkit/en/ (accessed 15 March 2022). **[71]**

Governance

- TDR/CP/78.5/Rev.2013/rev.1 Memorandum of Understanding on the Administrative and Technical Structures of the Special Programme for Research and Training in Tropical Diseases, 2013, https://www.who.int/tdr/documents/MOU-2013-rev1-en.pdf
- EB138/47 138th session, Hosted health partnerships Report by the Secretariat, Dec 2015 https://apps.who.int/iris/handle/10665/250720?locale-attribute=es&show=full
- TDR governing bodies recommendations 2017 -2021
- Standard operating procedures Scientific working groups and other external scientific / technical reviews of TDR projects, 2017 **[63]**

Standing Committee

- Website of the standing committee of TDR https://tdr.who.int/governance/the-standing-committee
- Standing Committee Operating Procedures, June 2013
- TDR/SC103/18.3 103rd Session of the TDR Standing Committee, April 2018 https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc103_decisions_recomms-final.pdf?sfvrsn=cb668e4e_5
- TDR/SC104/18.3 104th Session of the TDR Standing Committee, November 2018, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc104_decisions_recomms.pdf?sfvrsn=ea0b6d6a_7
- TDR/SC105/19.3 105th Session of the TDR Standing Committee, April 2019, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc105_decisions_recomms.pdf?sfvrsn=730ad6a6_5
- TDR/SC106/19.3 106th Session of the TDR Standing Committee, November 2019, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc106_decisions_recomms.pdf?sfvrsn=33683133_5
- TDR/SC107/20.3 107th Session of the TDR Standing Committee, April 2020, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc107_decisions_recomms.pdf?sfvrsn=98df46f3_9
- TDR/SC108/20.3 108th Session of the TDR Standing Committee, November 2020, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc108_decisions_recomms.pdf?sfvrsn=297f90b5_7
- TDR/SC109/21.3 109th Session of the TDR Standing Committee, April 2021, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc109_decisions_recomms.pdf?sfvrsn=9da508aa_9
- TDR/SS2021/21.3 Special Session of the TDR Standing Committee, May 2021 https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/ss-2021_decisions_recomms.pdf?sfvrsn=52a0c914_7
- TDR/SC110/21.3 110th Session of the TDR Standing Committee, November 2021, https://tdr.who.int/docs/librariesprovider10/governance/standing-committee/sc110_decisions_recomms.pdf?sfvrsn=e34e09c4_9

Joint Coordinating Board

- Website of the JCB https://tdr.who.int/groups/joint-coordinating-board
- JCB 45 documents https://tdr.who.int/groups/joint-coordinating-board/jcb45-documents
- Terms of reference for TDR Joint Coordinating Board members, June 2013 https://tdr.who.int/docs/librariesprovider10/governance/jcb_tors_en.pdf?sfvrsn=69a2b433_7
- TDR/JCB41/18.3/Rev.1 Report of the 41st Session of the JCB, 2018 **[69]**
- TDR/JCB42/19.3 Report of the 42nd Session of the JCB, 2019 **[36]**
- Report of the 43rd Session of the JCB, 2020
- Report of the 44th Session of the JCB, 2021

Regional Office Collaboration

- Collaboration with WHO Regional and Country Offices Terms of Reference
- TDR – WHO Regional Offices Meeting, Outcomes and Recommendations (2018, 2019 and 2020)

Scientific & Technical Advisory Committee (STAC)

- Website of the STAC https://tdr.who.int/groups/scientific-and-technical-advisory-committee
- TDR's Scientific and Technical Advisory Committee and Scientific Working Groups Terms of Reference, June 2014 https://tdr.who.int/docs/librariesprovider10/governance/stac_swg_tor_2017.pdf?sfvrsn=a576416a_5 **[62]**
- TDR/STAC40/18.3 40th Session, Report of the 40th Meeting of the STAC April 2018 https://tdr.who.int/docs/librariesprovider10/governance/stac/stac40-report_final.pdf?sfvrsn=ec810e00_7
- TDR/STAC41/19.3/Rev1 41st Session, Report of the 41st Meeting of the STAC, April 2019 https://tdr.who.int/docs/librariesprovider10/governance/stac/stac41_report_rev1.pdf?sfvrsn=e97546a8_7
- TDR/STAC42/20.3 42nd Session, Report of the 42nd Meeting of the STAC April 2020 https://tdr.who.int/docs/librariesprovider10/governance/stac/stac42-report.pdf?sfvrsn=3cd1782b_7
- TDR/STAC43/21.3 43rd Session, Report of the 43rd Meeting of the STAC April 2021 https://tdr.who.int/docs/librariesprovider10/governance/stac/stac43-report.pdf?sfvrsn=3566325b_5

Scientific Working Groups

- Research for Implementation: Report of the Scientific Working Group, October 2018 **[39]**
- Research for Implementation: Report of the Scientific Working Group, October 2021
- TDR Research Capacity Strengthening Report of the Scientific Working Group, October 2021
- TDR (2021) *Draft Annotated Agenda: Joint Meeting of the Scientific Working Groups for Research Capacity Strengthening and Research for Implementation, 22 October 2021* **[64]**

Access for Development Partnership

- ADP Status Report, 2021 https://adphealth.org/news/97/ADP-releases-2021-annual-Status-Report.html **[55]**
- ADP webinar http://adphealth.org/webinar/
- Discussion Paper: the gender dimensions of Neglected Tropical Diseases, Nov 2019 https://adphealth.org/upload/resource/2523_ADP_Discussion_Paper_NTDs_211119_web.pdf **[72]**

Published papers

- List of TDR's publications (2017-2020), Excel file
- TDR's publication list final 2021, Word file
- Strengthening the core health research capacity of national health systems helps build country resilience to epidemics: a cross-sectional survey, Jun 2020 10.12688/f1000research.24192.2 **[4]**
- Investing on Operational Research Capacity Building for Front-Line Health Workers Strengthens Countries' Resilience to Tackling the COVID-19, 2020 https://www.mdpi.com/2414-6366/5/3/118 **[74]**
- Quality, Equity and Utility of Observational Studies during 10 Years of Implementing the Structured Operational Research and Training Initiative in 72 Countries, Nov 2020 10.3390/tropicalmed5040167 **[47]**
- Public engagement and crowdfunding for health research: A global qualitative evidence synthesis and TDR pilot, Nov 2012, https://doi.org/10.1101/2021.11.08.21266070

- Influence of the 2014–2015 Ebola Outbreak on the Vaccination of Children in a Rural District of Guinea, 2017 https://dx.doi.org/10.5588%2Fpha.16.0120 **[49]**
- Operational Guide: Using the Web-Based Dashboard: The Early Warning and Response System (EWARS) for Dengue Outbreaks, WHO and TDR, 2018 http://apps.who.int/iris/bitstream/handle/10665/274318/9789241514354-eng.pdf?ua=1 **[50]**
- Validation of the Early Warning and Response System (EWARS) for Dengue Outbreaks: Evidence from the National Vector Control Program in Mexico, 2021 https://doi.org/10.1371/journal.pntd.0009261 **[51]**
- Operational Research to Tackle TB in Eastern Europe and Central Asia: Moving Forward during the COVID-19 Pandemic, 2021 https://pubmed.ncbi.nlm.nih.gov/34609953/ **[78]**
- COVID-19: Investing in Country Capacity to Bridge Science, Policy and Action, 2021 https://gh.bmj.com/content/6/2/e005012 **[79]**
- The COVID-19 Pandemic in Low- and Middle-Income Countries, who Carries the Burden? Review of Mass Media and Publications from Six Countries, 2021 https://pubmed.ncbi.nlm.nih.gov/33657984/ **[80]**
- Going Virtual for Research Training during the COVID-19 Pandemic and Beyond: e-SORT IT, 2021 https://doi.org/10.3855/jidc.15057 **[81]**
- Leveraging Artificial Intelligence to Assist the Ethical and Science-Based Distribution of COVID-19 Vaccines, 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8645219/ **[82]**
- The Consequence of COVID-19 on the Global Supply of Medical Products: Why Indian Generics Matter for the World? 2020 https://doi.org/10.12688/f1000research.23057.1 **[83]**
- Social Innovation in Health: A Critical but Overlooked Component of the COVID-19 Pandemic Response, 2021 http://dx.doi.org/10.1136/bmjinnov-2021-000703 **[84]**
- Achieving Global Mortality Reduction Targets and Universal Health Coverage: The impact of COVID-19, 2021 https://doi.org/10.1371/journal.pmed.1003675 **[85]**
- Research output after participants complete a Structured Operational Research and Training (SORT IT) course, 2015, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4682620/
- Sustained research capacity after completing a Structured Operational Research and Training (SORT IT) course, 2016 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5034790/
- Strengthening Research Capacity: A Systematic Review of Manuscript Writing and Publishing Interventions for Researchers in Low-Income and Middle-Income Countries, 2022 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8845213/

Other documents

- Second Round of the National Pulse Survey on Continuity of Essential Health Services during the COVID-19 Pandemic, WHO, 2021 https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS-continuity-survey-2021.1 **[76]**
- Results Report 2021, The Global Fund, 2021 https://www.theglobalfund.org/media/11304/corporate_2021resultsreport_report_en.pdf **[77]**
- Dutch Research Council website available on https://www.nwo.nl/en/researchprogrammes/tasene (accessed 5 March 2022). **[53]**

Annex 4: Progress in Implementing the Major Recommendations of the Sixth Review

6th review recommendation	Status of implementation
1. TDR should continue its focus on implementation research and should confirm its current direction of travel in withdrawing from supporting product research and development through its own funds.	**Implemented** PB2018-19 states that "*In line with our overall strategy, TDR will not sponsor research and development (R&D)*" but may inform R&D by providing a directional perspective on innovation. This is done under 1.1.5. Directions for development and accelerated access to new tools and strategies (target: involvement in 2 initiatives). Also, under RCS, there is a capacity development activity relating to R&D: 2.1.4. Advanced training in clinical product development.
2. TDR should seek to clarify precisely what it means by IIR, focusing on what TDR will and will not do under this heading.	**Implemented** 2018-2023 Strategy provides a definition of research for implementation, including its two components: Implementation Research and Operational Research. However, from interviews there may still be need for further communication to external stakeholders on the remit of TDR's work in this area.
3. If TDR does take on the management of the HPRDF, the risks of doing this need to be clearly identified and mitigated**.**	**Implemented** Management of HPRDF by TDR was not taken forward. The WHA 67(15) had requested TDR to explore the possibility of using TDR's existing governance mechanism to host this pooled fund raised by WHO for R&D on type III and II diseases. However, this mechanism was not taken forward by WHO. Using the preparatory work conducted for this, the Health Product Profile Directory was launched by TDR on behalf of WHO as a global public health good (GPHG).
4. In its next Strategic Plan, TDR should clearly outline its approaches to partnerships, ensuring that costs of inputs, including opportunity costs, into such partnerships are covered and expectations clarified.	**Implemented** Pp22-23 of the 2018-23 Strategy includes a section on "*Partnering to mobilize resources and maximize impact*" and the partnership criteria. However, the cost of inputs/opportunity costs of partnerships are not outlined for example in programme budgets (PBs). The management response states that "*a deeper analysis of current engagements*" has been undertaken.
5. While TDR should continue to support capacity building initiatives, it should explore the possibility of conducting such work in collaboration with other organizations, e.g. HRP and AHPSR.	**Implemented** A common theory of change has been developed with HRP and the Alliance for strengthening research capacity in implementation research. A status report was provided on this collaboration to JCB (2019) entitled "*Implementation research support for UHC*". It outlines achievements (jointly advocating for IR, e.g. in Astana/UHC; joint TDR/HRP/AHPSR/PAHO small grant programme, country-led research in Nepal, Ethiopia and India under Science Division) as well as next steps: - Agree on indicators and start tracking progress under the joint theory of change (ToC) - Review best modalities and lessons learned from the country IR support pilots - Further explore joint funding mechanisms, including new areas for joint engagement (e.g. migrant health) - Work with WHO to agree on common approaches/definitions in key areas: IR, capacity building, research management, ESSENCE The 2019 HRP evaluation notes that there is some progress on collaborating with TDR on short-courses training for research methods and approach. It notes that HRP should continue and expand its collaboration with TDR and eventually also AHPSR in developing and delivering a curriculum of short research training courses. The 2021 AHPSR evaluation notes that collaboration in IR capacity strengthening has improved with TDR and HRP, with active support from donors. It notes that TDR and HRP have greater capacity and more joint collaborations in this area. The final set up and degree of integration needed between the three programmes, in particular for the capacity strengthening aspects, is part of the ongoing dialogue between the three programmes and the Science Division of WHO and is considered further in the partnership section of this report.
6. Consideration should be given to the further development of the TDR Global database to support a community of individuals who have an interest and expertise in implementation research.	**Implemented** The TDR Global Engagement Strategy focuses on mentorship. TDR Global worked with Social Entrepreneurship to Spur Health (SESH) to run a Crowdsourcing Research Mentorship contest. The mentorship work is coordinated by regional nodes (3 RTCs) looking at innovative ways to engage alumni in mentoring activities and keep their profiles updated. A survey is being conducted on how TDR has supported its alumni's career (first edition in 2017).
7. TDR's structure should be appropriate for its strategic focus. There may be a need for greater senior	**Implemented/partly accepted** The 6th review recommended strengthening SM in specific functions (resource mobilisation, monitoring and evaluation, and education). Especially on mobilising resources *"the responsibility for this is currently with a*

<table>
<tr><th>6th review recommendation</th><th>Status of implementation</th></tr>
<tr><td>management capacity over two or more technical workstreams and greater capacity for monitoring and evaluation, resource mobilisation and research uptake across TDR.</td><td>senior manager who carries an excessively large portfolio. There is an argument for creating a dedicated resource for mobilising resources"
This recommendation was partly taken on-board in the management response, highlighting that the mitigation strategy would entail skills development of existing staff and reorganization within the existing team to avoid increasing the number of fixed positions. The PIM unit addresses gaps highlighted in previous reviews in terms of programme management.
However, both staff and external stakeholders have raised the concern that team members are overstretched, especially technical and management staff at all levels. The recruitment of short-term staff or consultants to fulfil core/long-term functions has been called into question as potentially less efficient and at odds with ethical/good labour management practices.</td></tr>
<tr><td>8. In general, TDR benefits from being a programme with several UN agencies as co-sponsors. This situation should be maintained. This may involve explaining more clearly how TDR's work is relevant to the co-sponsors and identifying ways in which mutual benefit can be leveraged.</td><td>Partly implemented
All co-sponsors now attend JCB, reflecting increased engagement. However, the level of engagement varies between co-sponsors: Some of the co-sponsors are involved in joint activities with TDR (Access and Delivery Partnership with UNDP; handbook on implementation research for decision makers with UNICEF). The World Bank attends JCB regularly, but there are no joint activities. The World Bank would like to explore opportunities for joint working and would see such work mainly happening at country level. The relevance of TDR to World Bank in the current context may need to be redefined. With WHO, integration has further improved with the creation of a Science Division.
TDR's guidance on IR/RCS does not seem to be widely used by co-sponsors, other than WHO, in their programmes. Co-sponsors would welcome increased engagement (individual discussions and/or a pre-JCB meeting)</td></tr>
<tr><td>9. The Director has contributed hugely to restoring TDR's credibility. There is now a need to ensure management capacity is extended into technical areas, and succession planning is actively managed.</td><td>Implemented
In terms of ensuring that management capacity is extended into technical area, the management response outlines that a management skills development programme has been instigated with team leaders in order to reflect TDR's role as a programme managing/facilitating research.
In terms of succession planning, a draft succession planning and procedures document has been developed, focusing on key staff position to ensure continuity of important activities and the preservation of institutional memory. Main strategies envisaged are to track planned departures, to ensure that recruitment processes are initiated early, and to prepare the handover by departing staff. Additionally, TDR is now being managed by a part-time Director, which could be seen as part of succession planning. Managing retirement of key staff may also entail reviewing the skill mix needed to ensure that those are aligned to the new strategic priorities and review positions/staff structure accordingly if needs be.

TDR has produced a table which shows which staff will be retiring in the next four to five years and this is shown here:
<table>
<tr><th>Position</th><th>Retirement year</th></tr>
<tr><td>RCS Scientist P5</td><td>2022</td></tr>
<tr><td>IMP Scientist P5</td><td>2022</td></tr>
<tr><td>IMP Scientist P5</td><td>2023</td></tr>
<tr><td>IMP Unit Head P5</td><td>2024</td></tr>
<tr><td>Director</td><td>2025</td></tr>
<tr><td>IMP Scientist P5</td><td>2025</td></tr>
<tr><td>Technical assistant G6</td><td>2026</td></tr>
</table></td></tr>
<tr><td>10. Where donors provide designated funding, it is important that TDR only engages with agreements that it can effectively handle administratively and for which all costs are covered by that funding.</td><td>Implemented
TDR policy has a full cost recovery policy[26] for designated funds (DF) projects which stipulates that, from each DF grant, TDR must ensure a full-cost recovery of staff working on project and associated support costs. This includes programme support costs at a level of 13%, as specified by WHO, unless the funder has a special agreement with WHO.
TDR operates with a double budgeting process, with a $40m conservative budget scenario ensuring that operations support and personnel costs can be accommodated in the committed funding where undesignated funding (UD) is the most predictable. As additional DF are mobilised and TDR moves to a $50m budget scenario, additional funds are freed up for activities in the UD budget by recovering a share of the support and personnel costs from DF.
This issue is considered in more detail in the report's section on efficiency including consideration of the extent to which the 13% charged by WHO adequately covers programme support costs.</td></tr>
<tr><td>11. TDR urgently needs to improve its project management systems, which may involve entering into intensive negotiation with WHO.</td><td>Implemented
The 6th external review concern related to challenges relating to project management within WHO's systems: "TDR systems are subordinated to WHO-wide systems, such as the WHO Global Management System (GSM). There have been a number of disadvantages relating to this adherence, including the failure to implement a fit-for-purpose unified project management system." The risk management system includes a risk in relation to this: "Risk 8: If there is no improvement in WHO's IT systems in terms of project management, there is a risk of poor control of TDR information, resulting in delays, poor analysis and impacting monitoring and reporting of TDR activities."

The PIM unit is responsible for project management systems updating/implementation. Its 2022-23 workplan reflects the integration in WHO core planning/budgeting processes (GSM, PRP tool, output scorecard). While the review advocated for the adoption of CONNECT, a project management system allowing TDR to link up to GSM, another platform and interface were adopted to fulfil this need, e-TDR a new</td></tr>
</table>

[26] TDR (2021) *Designated Funding Grant Policy and Procedures*

6th review recommendation	Status of implementation
	project and grant management system developed in consultation with WHO's information technology (IT) department. With this the risk 8 has been mitigated against and TDR proposes its closure in its register of significant risks. In general, TDR's project management and reporting systems are appreciated and deemed highly efficient by interviewed TDR donors.
12. Consideration should be given to reviewing the working of the SWGs to optimise their contribution.	**Partly implemented** The management response noted that the SWGs were a recent introduction and that "*a review would be undertaken when operations are fully established*". This review has found no evidence that such an exercise has been conducted so far. The 2019 JCB report further clarifies the role of the SWGs: *"the scientific working groups made up of independent experts are advising and reviewing the quality of our work on an ongoing basis"* The SWGs have changed since the 6th review, there are now two (IMP and RCS) as compared to one for each of the three technical strands (VES, IIR, and RCS-KM) in the previous strategy. The latest IMP SWG meeting report (draft 2021) mentions there was a joint session with GE to better understand linkages with the area under their mandate, which includes a review of the GE activities. This was presented as an opportunity to better understand how GE activities support the research and capacity strengthening work.

Annex 5: Summary of TDR Results Reports to Date

Level	Indicator	Baseline (2017)	Target (2023)	2018	2019	2020	Comment
Impact	i. SDG3-Goal 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.	Evaluation demonstrating the link between outcomes and the progress made towards achieving the relevant SDG goals.					
	ii. SDG 3-Goal 3.8: Achieve Universal Health Coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.						
	iii. SDG3-Goal 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines						
	iv. SDG3-Goal 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.						
	v. SDG13-Goal 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries						
	vi. SDG9-Goal 9.5: Enhance scientific research, (…) encouraging innovation and substantially increasing the number of research and development workers per 1 million people						
Outcome	1. Number and evidence when innovative knowledge or new/improved solutions/tools developed with TDR support are applied in disease-endemic countries	0	100	21	39	83	
	2. Number and evidence when tools and reports are used to inform policy and/or practice of global/ regional stakeholders or major funding agencies	0	20	3	11	18	
	3. Evidence demonstrating the benefits of research on gender, on equity or on vulnerable groups, including people with disabilities, used to inform policy and/or practice	N/A	N/A	Evidence provided	Evidence provided	Evidence provided	
Research outputs	4. Number and evidence of innovative knowledge,	0	25	15	33	46	Target achieved in second of six years

Level	Indicator	Baseline (2017)	Target (2023)	2018	2019	2020	Comment
	new/improved solutions or implementation strategies developed in response to requests from WHO control programmes and/or diseases endemic countries and engaging disease endemic country stakeholders						
	5. Number of research data sets/platforms that are i) open access or ii) with an access permission level	1	10	1	8	9[27]	Most of achievement is at access permission level
Capacity strengthening outputs	6. Number and evidence of DEC institutions and networks demonstrating expanded scope of activities or increased funding from alternative sources, or that have influenced research agenda, policy and practice, as a result of or related to TDR support	0	5	4	9	11	Target achieved in second of six years
	7. Number of TDR grantees/trainees per year, and proportion demonstrating career progression and/or increased scientific productivity, disaggregated by gender	29 (2017) 85% (2014)	150 ≥80%	287 (108)	397 (289)	451 (54)	First part of indicator only. Note that the figures reported are cumulative but the target is annual. In addition, contracts and grants reported in 2018 were later excluded from cumulative total. We have therefore added the annual total in brackets but we have colour coded on the basis of cumulative progress of 150 per year to a total over six years of 900.
Global engagement outputs	8. Number and evidence of research-related agendas, recommendations and practices agreed by stakeholders at global, regional or country level and facilitated by TDR	0	6	3	5	6	Target achieved after three years of six
	9. Evidence of stakeholder engagement in TDR joint initiatives aligned with TDR strategic objectives	N/A	N/A	Evidence provided	Evidence provided	To be reported at biennium end	
Equity	10. Proportion of TDR grants/contracts awarded to institutions or individuals in DECs (total count and total amount)	74% (amount 62% (count)	75%DEC	83% DEC (amount) 58% DEC (count)	74% DEC (amount) 62% (count)	71% DEC (amount) 64% (count)	
	11. Proportion of experts from DECs on TDR external advisory committees	78%	>60%	68%	70%	70%	
	12. Proportion of peer-reviewed publications supported by TDR with authors from DEC institutions (first author - FA, last author - LA, all authors - AA)	FA 73% LA 56% AA N/A	≥67%	FA 73% LA 60% AA No data	FA 85% LA 63% AA 71%	FA 81% LA 68% AA 63%	

[27] Although this figure does not total i) open access + ii) with an access permission level

Level	Indicator	Baseline (2017)	Target (2023)	2018	2019	2020	Comment
	13. Number of peer-reviewed publications supported by TDR and percentage published in open/free access	200 88%	≥150/year 100%	222 81%[28]	223 93%	214 93%	
	14. Proportion of women among grantees/contract recipients (total count and total amount)	40% (count) 29% (amount)	50%	47% (count) 45% (amount)	47% (count) 47% (amount)	49% (count) 46% (amount)	
	15. Proportion of women on TDR external advisory committees	50%	50%	57%	57%	60%	It may be helpful to set the target as an acceptable range.
	16. Proportion of women authors of peer-reviewed publications supported by TDR (first author - FA, last author - LA)	FA 38% LA 24%	50%	FA 44% LA 28%	FA 43% LA 28%	FA 45% LA 30%	
	17. Number and proportion of peer-reviewed publications explicitly considering: gender and women issues, vulnerable groups or people with disabilities	N/A	80%	Total 57%	Total 75%	Total 75%	
Effective multisectoral partnerships	18. Resources leveraged as direct contributions (co funding, services or in-kind) to TDR projects (examples)	$1:1 ($TDR: $partners) People 1:30 (TDR:in the field)	S$2:1	To be measured end of biennium	$1:1.5 ($ TDR : $ partners) People 1:33 (TDR : in	To be reported at biennium end	
Value-for-money	19. Evidence demonstrating value-for-money, cost savings and/or enhanced efficiency or effectiveness	N/A	N/A	To be measured end of biennium	Evidence provided	To be reported at biennium end	
Quality of work	20. Proportion of project reports evaluated as satisfactory by external advisory committees	100%	>80%	100%	96%	To be reported at biennium end	
Sustainability of outcomes	21. Number of effective public health tools and strategies developed which have been in use for at least two years	0	40	To be measured end of biennium	12	To be reported at biennium end	
Effective resource mobilization	22. Percentage of approved biennial budget successfully funded	87.9% (US$39.5/ 45M)	≥100%	To be measured end of biennium	US$40M scenario 100%	To be reported at biennium end	
	23. Percentage of income received from multi-year, unconditional donor agreements	17.3% (US$6.8M/ 39.5M)	70%	To be measured end of biennium	1% (US$0.3M/ 50.7M)	To be reported at biennium end	For this target, multi-year is counted as three years or more and unconditional is counted as if there is a binding contract. In practice, little if any of TDR's funding meets these criteria and the direction of travel for most funders is in the opposite direction, annual funding which is subject to

[28] Lower than baseline

Level	Indicator	Baseline (2017)	Target (2023)	2018	2019	2020	Comment
							adjustment depending on national, domestic situation and parliamentary intervention. Given this, it seems extremely unlikely that this target will be met.
Effective management	24. Percentage of staff workplans and performance reviews (including personal development plan) completed on time	89%	≥90%	100%	100%	100%	
	25. Proportion of expected results on track	89%	≥80%	100%	84%	96%	
	26. Proportion of significant risk management action plans that are on track	100%	≥80%	100%	92%	95%	

Annex 6: Comparison of How Well Key TDR/WHO Systems were Considered to be Working at the Time of the Sixth Review and Now

System/process	Assessment by sixth review	Current situation
Finance	Major problems which occurred in 2011 were summarised. Concerns that systems required a lot of manual data entry. A number of problems with GSM were itemised.	Issues with GSM remain but WHO is in the process of replacing this with a system based on Salesforce, software which TDR is already using. It is hoped this will reduce the need for manual importation of data from one system to another but some teething issues are anticipated.
Forecasting	The review described the dual funding scenario system and suggested that the lower level could be even more conservative.	The dual forecasting system is well-established, well-understood and provides an effective way of managing TDR's funding uncertainties within WHO's biennium system. Levels of the two scenarios seem appropriate but TDR has experience of introducing more severe contingency measures if needed.
Costing and scheduling	Variable accuracy of costings across workstreams. Example given of poor understanding and use of planning instruments.	Considerable effort has been made to improve costing, scheduling and financial planning.
Use of funds	Previously, proportion spent on operations was low. This led to headcount reduction.	Overall, around 81% of funding is spent on operations. The restrictions on recruiting new posts in Geneva, where all TDR staff are currently based, remain in place and are broadly appropriate. TDR report that they leverage additional resources in the field, such as grantees, trainees, students and other people providing support, through TDR's partnership-based working model.
Apportioning support costs to projects	Since 2011, this is calculated at 13% but Secretariat estimates this might be 20% plus staff input of 10—15%. Recommended reviewing the 13% and perhaps having different levels for different types of projects.	TDR has taken steps to ensure that all direct costs of operations support are charged to projects and this means most projects are charged 28-35% for operations support. However, more indirect costs of operations support, which might also be seen as a contribution to core organizational costs, are still recovered using the PSC at a level of 13%, set by WHO. As the true cost of such indirect operations support is around 19% currently, this means that a higher proportion of those costs are being borne from undesignated funds than from designated funds. This issue is covered in some detail in this report (see p35).
Implementation rate	Generally good although initially slow but did a push to spend affect quality of spend.	Overall, this remains good. However, this was affected by COVID-19 during the last biennium meaning that some activities were not conducted while others moved online resulting in considerable financial savings which reduced the implementation rate in financial terms.
Working capital	Recommended the need for this and standing committee has agreed to keeping up to $8m for this.	This matter was covered in recommendation 2 of SC108. In the TDR Secretariat's comment on this recommendation, they noted that this would be revisited at the end of the biennium. The TDR Secretariat report that they have working capital at the level of $12m which they consider to be in line with the JCB recommendation.
Measuring success of financial/planning processes	No single measure. Reputation within WHO is good.	This remains the case.

System/process	Assessment by sixth review	Current situation
Risk management	This system was not fully implemented. A system was introduced in 2012 following the 2011 review. It was not clear if the risk register was open to the Standing Committee and JCB. The system did not score by likelihood or impact. Risks were broad and high level with non-specific mitigations. The risk owner was always PPM or Director's office. Concern that risks were removed inappropriately from the register. Need for risk assessment with any new activity.	The system is based on assessing likelihood and potential impact of risks although risk is not reported in this way to the JCB. The type of risks reported to the JCB is broadly appropriate. While these risks are largely the responsibility of PIM or the Director's office, this is broadly appropriate and other units are expected to identify and manage other risks. The language of removing risks remains and it might be more appropriate to refer to reduction of risk below the level of significance that requires reporting to the JCB. Risk assessments are carried out for new activities. Issues of risk management are covered in some detail in this report (see p40).
Project management system	TDR was facing major problems in this area. They wanted to introduce their own CONNECT system but were waiting for WHO approval	It was not possible to introduce CONNECT. So, in collaboration with WHO, a new system was developed called e-TDR, which is based on Salesforce. Despite some delays, the system is now operating. Currently, data still needs to be inputted manually from GSM but it is hoped this will change when WHO fully adopts its own Salesforce-based system. In February 2022, the Salesforce licence was taken over by WHO as a corporate licence which is expected to bring even greater functionality.
Project approval and selection	There was some confusion over whose role this was between working groups and the Secretariat. The process was considered to lack transparency. The review recommended that, where the SWG was involved with prioritisation, there needed to be a scoring system against agreed criteria.	The TDR Secretariat report that they made it mandatory that scoring and selection criteria are systematically included with each call for proposals. Selection is based on those criteria. An example of a review form based on the selection criteria was provided to the review team.
Operational systems	An administrative handbook was developed in 2013. The review suggested that this should be held electronically and that it could be shared with other programmes.	The TDR Secretariat report that this is available electronically for TSR staff but that they consider that TDR-specific processes would make this inapplicable to other programmes.
Ethical approval system	The review documented long delays due to the WHO ethical review process	The TDR Secretariat provided the review team with a detailed paper on this topic. The examples provided show that gaining ethical approval remains a lengthy process in WHO. However, the bulk of the time (57-90%) relates to revisions being made by the investigator or the WHO Responsible Officer.
Strategic Development Fund (SDF)	Recommended to maintain a small fund of this mature to respond to unforeseen needs.	This is still in place. According to the TDR Secretariat, $700,000 was budgeted and spent in 2020/21.
Priority setting	Portfolio Prioritisation Model was agreed by JCB in 2014. The review raised concern that monitoring and evaluation data was not being used in the process and there was no formal weighting or scoring system.	The TDR Secretariat reports that priority setting is done in accordance with the latest revision of the model. The Secretariat and TDR's governance structure are provided with status updates, progress reports and any evaluation reports available.
Planning and budgeting	The systems were in place but there needed to be skills training and a change in attitudes and behaviours, particularly among senior and middle managers in some technical workstreams.	The planning and budgeting system is now well-established and well-understood.
Resource mobilisation	Review recommended that more capacity was needed in this area including a designated person but also for all managers to take this role on.	The proposal of a designated person on resource mobilisation was not considered possible because of headcount restrictions. However, the Secretariat report that they did hire consultants to

System/process	Assessment by sixth review	Current situation
		map opportunities to raise designated funding. In addition, the fundraising role has been mainstreamed to technical units beyond the Director's office. Some respondents see initiatives by WHO and funders to channel more core/ undesignated funding through WHO centrally as a major risk for TDR.
Systems to measure benefit	The review raised concerns about limited progress in this area particularly in terms of workstreams assessing how findings had been translated into policy and practice. The review suggested tracking the number of TDR grantees using their skills in home country institutions, the proportion demonstrating career progression/ scientific productivity, the self- and peer-reported perceived and projected impact of TDR-funded activities, and qualitative case studies describing impact or its future potential. The lack of a dedicated M&E function was considered to be impeding this objective.	Progress has been made in these areas and is covered in some detail in this report's section on impact (see p43).
Working in partnership	Covered work with Regional and Country Offices. Regional focal points felt communication had improved. Also commented on work with AHPSR and HRP, the Access and Delivery Partnership and SORT IT.	Experience of regional offices is mixed and is covered in this report (see p30 and p50). The relationship with HRP is close but less so with AHPSR. Issues of partnership are summarised on p68.
Human resources		
Global mobility policy	This was relatively new and was identified as a threat to TDR	Although this policy remains in place, it is not being actively implemented by WHO. It continues to be considered a significant risk to TDR and this issue is discussed further in the section on risk in this report (see p40).
Identifying personal development needs	The review noted that there did not seem to be a system for this and recommended considering the development of a formal system for this.	Some staff respondents raised concerns over lack of career progression. The TDR Secretariat report now having a staff development policy with a dedicated fund and they actively encourage staff in this area. WHO has also introduced a staff development policy that TDR staff can utilise to take training and temporary secondments to other departments.
Performance management system	This was said to be in place.	TDR Secretariat report following WHO processes for performance management, including conducting twice yearly formal employee-supervisor meetings that are documented in WHO's system. They include the assessment of progress made on objectives and deliverables, competencies gained, learning/career development plan, contribution to team objectives and, more recently, action to prevent exploitation, abuse, harassment.
Travel	The review raised concerns that staff travel did not seem to be based on need but on individual preferences for ways of working	This issue has been less in focus recently as travel has been heavily curtailed as a result of COVID-19. However, this issue is likely to become more prominent as travel resumes. In the Secretariat's response to the sixth review, they commented that a TDR staff group will be formed to review criteria and produce further objective guidance to improve consistency in travel approval across TDR (alongside discussion of increased use of remote communication).

System/process	Assessment by sixth review	Current situation
		The TDR Secretariat report that this review did happen and that TDR now has a file that centralises travel plans for TDR, and supervisors and the Director critically assess the need, suitability and added value of each travel. Even prior to the COVID-19 pandemic, the Secretariat report that considerable savings had been made by advance planning and securing best ticket prices.
Convenor/Secretariat	This focused a lot on HPRDF but also commented on ESSENCE noting that TDR should continue with this but expressing concern about the amount of time the Partnership and Governance Manager was spending on this.	HPRDF did not proceed but TDR continues to act as Secretariat for ESSENCE. While TDR continues to monitor this as a risk, TDR's role in convening ESSENCE is seen as of strategic importance to TDR as it continues to be a valuable vehicle for policy harmonisation. It also adds visibility for TDR with major donors.
Communications including the website	Noted work done to rebuild confidence in TDR following the crisis.	Considerable work has been done on the website including a switch to use Sitefinity. TDR has been able to retain its own URL and brand. Migration had to be done under time pressure and there were some difficulties with archiving and some materials were lost. The old site remains live and can be accessed through specific pages.
Acting on recommendations from governance bodies	SWG members were not always clear if their recommendations had been acted on.	This has been addressed by both RCS and IMP who include a detailed table in their annual reports as to how they have responded to SWG recommendations.
Ensuring the quality of work	The fifth review identified problems in this area. Four key steps were identified – project selection, project management, publication and use of research evidence. The review recommended developing a quality assurance system.	The TDR Secretariat report that, from the fifth review in 2011, TDR has strengthened its systems, which continue to rely on external independent expert review selecting the best quality projects, overseeing their implementation, and full transparency of results through peer-reviewed publication of work conducted. This issue is covered in more detail in the quality of science section of this report (see p56).

Annex 7: Significant Risks Associated with TDR's Expected Results

	Expected result	Manager	Risk
ER 1.1.1	Country preparedness for disease outbreaks	Corinne Merle	Lack of interest outside epidemic peaks resulting in insufficient funding
ER 1.1.4	Country resilience to the threat of drug-resistant infections	Rony Zachariah	Lack of continued engagement from WHO country offices and AMR national committees
ER 1.1.5	Directions for development and accelerated access to new tools and strategies	TBD	Resistance to change by key stakeholders unwilling to adopt new solutions
ER 1.1.7	Maximized utilization of data for public health decision-making	Rony Zachariah	Possibility of "weaning funding for TDR" for classical SORT IT courses Loss of quality as we franchise the model to other institutions
ER 1.1.8	Maximized utilization of safety information for public health decision-making	Christine Halleux	Refusal from sites or countries to share data Low quality implementation at country level
ER 1.2.1	Strategies to achieve and sustain disease elimination	Annette Kuesel[29] and Christine Halleux[30]	Insufficient funding Research question are not targeting key priorities for programmes
ER 1.2.6	Optimized approaches for effective delivery and impact assessment of public health interventions	Corinne Merle	Insufficient engagement of national control programmes Inability of some control programmes to define research priorities and capacity building needs
ER 1.3.10	Urban health interventions for the prevention and control of vector-borne and other infectious diseases of poverty	Mariam Otmani del Barrio	Weak capacities at country level to effectively apply an intersectional gender analysis in research processes
ER 1.3.11	Multisectoral Approach (MSA) for prevention and control of malaria and emerging arboviral diseases	Florence Fouque	Calls for applications do not result in proposals that support the requested criteria Insufficient involvement of stakeholders
ER 1.3.12	Strategies to promote gender-responsive health interventions on prevention and control of infectious diseases of poverty	Mariam Otmani del Barrio	Knowledge translation outcomes on gender equality are usually beyond the control or influence of projects
ER 1.3.14	Testing of innovative strategies for vector control	Florence Fouque	Calls for applications do not result in proposals that support the requested criteria Poor involvement of vector control agencies
ER 1.3.3	Population health vulnerabilities to VBDs: Increasing resilience under climate change conditions (Operationalizing a One Health Approach for the Control of VBDs in the Context of Climate Change)	Bernadette Ramirez	Health researchers, country task teams and other stakeholders may find it difficult to work under transdisciplinary circumstances (e.g. climate, agriculture, etc) Knowledge translation outcomes are usually not under the control or influence of projects

[29] For onchocerciasis and lymphatic filariasis
[30] For visceral leishmaniasis

	Expected result	Manager	Risk
ER 1.3.5	Advancing social innovation in health care delivery in low- and middle-income countries through research, capacity strengthening and advocacy	Beatrice Halpaap	Sustainability of efforts and collaborations established is a key challenge. Ensure coherence and synergy as the network expands
ER 2.1.1.1	Strategic support to WHO regional activities: The Regional Training Centres	Pascal Launois	Unable to identify suitable satellite institutions for dissemination of the package of training courses Poor uptake of the courses on good health research practices and research for implementation by LMICs in each region Poor performance of an RTC
ER 2.1.1.2	WHO regional office collaboration and small grants	Garry Aslanyan	Insufficient managerial and technical staff at the regional office Instability and inconsistency of regional focal points
ER 2.1.2	Targeted research training grants in low- and middle-income countries	Mahnaz Vahedi	Some grantees from LMICs are likely to work on other SDG related goals which are beyond infectious diseases of poverty, thus reducing the number of research for implementation in infectious diseases of poverty. Competition from similar, well-funded initiatives Lack of transparency or inadequacy in selection of students resulting in inequity, lack of diversity and admission of low-quality students; inadequate quality training offered by some of the selected universities Allocating inadequate resources to sustain the scheme resulting in discontinuation of the scheme with premature termination for the students
ER 2.1.4	Advanced training in Clinical Product Development (Career Development Fellowship grants)	Pascal Launois	Insufficient interest of clinical product development partners as training partners Geographical distribution biased to the African region due to the EDCTP Partnership which focus only on sub-Saharan countries
ER 2.1.6	UNDP structured capacity building in research for implementation to improve access and delivery of health technologies in LMICs	Olumide Ogundahunsi	Issues addressed by the projects are of low priority to country needs Implementation of project deviates from core objectives of the UNDP-led Access and Delivery Partnership Low quality implementation at country level
ER 2.2.1	Knowledge Management, shaping the research agenda	Robert Terry	Failing to clearly define the need for and use of such priority setting processes
ER 2.2.2	Capacity strengthening to bring research evidence into policy	Robert Terry	Lack of take-up of the recommendations from reports/briefs by policy-makers and programme managers Resistance to data sharing from within the research community

	Expected result	Manager	Risk
ER 2.3.1	Collaborative networks and Global Health Initiatives (GHIs)	Garry Aslanyan	Perception that the needs of LMICs are not well represented in the decision-making process of ESSENCE Requires intense and proactive TDR staff time and effort for the success of ESSENCE Inadequate prioritization of cost opportunities for engagement with certain GHIs
ER 2.3.3	TDR Global - the community of former trainees, grantees and experts	Michael Mihut	TDR community does not populate their data into TDR Global which may impact the ability: i) to assess the impact of TDR's grants on their careers; and ii) of platform users to find specific expertise and establish collaborations A platform requiring extensive human resources may affect its sustainability A drop in TDR's income may affect the ability to maintain the platform as developed Decentralizing TDR Global to regional training centres may affect its sustainability and quality
ER 2.3.4	Effective incorporation of intersectional gender analysis in research and training on infectious diseases	Mariam Otmani del Barrio	Knowledge translation outcomes on gender equality are usually beyond the control or influence of projects