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Evaluation of the research assignment of the Institute of Tropical Medicine (ITM)

Management Summary



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Introduction

This is the executive summary of the report to the Department of Economy, Science and Innovation (EWI) of the Flemish government with the results of the evaluation of the scientific assignment of the Institute of Tropical Medicine (ITM) in Antwerp. This evaluation is part of the current agreement (covenant) on scientific research between the Flemish government and ITM (2008-2012). In accordance with this agreement, an evaluation should take place in the first half of 2012.

Technopolis Group carried out the evaluation¹ in the period March to June 2012. The assignment to Technopolis was to inform the Flemish government about the research performance of ITM, its role and position in the research landscape and its research management and organisation. The evaluators were also asked to provide recommendations to the government to support future policymaking and specifically the design of a new covenant with ITM.

Scope of the evaluation

The evaluation of ITM, which primarily focuses on the research assignment of the institute, had two main objectives:

- The evaluation serves as the basis for drawing up a new research agreement between the Department of Economy, Science and Innovation of the Flemish government (hereafter referred to as department of EWI or EWI) and ITM. This new agreement, based on sound recommendations, should lead to new collaboration with and (better) performance of ITM.
- The evaluation should further stimulate ITM's internal process of reflection on its performance.

Based on these objectives the evaluation of ITM consists of five components:

- 1. Quality and excellence of ITM:** This consists of an analysis of the execution of the tasks of ITM, an assessment of its performance, added value and impact. Specifically, an assessment was made of the results of ITM on the predefined Key Performance Indicators (KPIs), as stated in the covenant.
- 2. The role and position of ITM in the research landscape:** this relates to the role ITM fulfils and the position the institute takes in both the national as international research landscape. ITM's collaboration with other actors is assessed, and a comparative analysis is made with a three other international tropical medicine institutes.
- 3. Organisation and management of the research:** The third component is aimed at the assessment of ITM's research policy (including human resources) and management.
- 4. The future of ITM:** An assessment is made of the strengths, weaknesses, opportunities and threats of the ITM and the draft policy plan of ITM
- 5. The research agreement:** The final component of the evaluation concerns a comprehensive assessment of the research agreement in terms of clearly defined objectives and the efficiency and effectiveness of the KPIs. This assessment is based on the results of the other components.

¹ The contract was assigned to Technopolis Group through a procedure for public procurement (Terms of Reference entitled "Specific tasks in the context of the evaluation of (the investment by the Flemish government in) the Institute for Tropical Medicine (ITM)" - EWI-2012-05).

Data collection and methods used

To assess the performance of ITM we used multiple sources of information:

- A (ex post) self-assessment drafted by ITM, describing the organisational structure (including recent developments), its activities and achievements.
- The draft strategic plan (plan) of ITM Research for the period 2013-2017.
- Annual reports of ITM and additional information about the institute, provided by ITM.
- A number of policy documents of the Flemish government and information about the (international) policy context in the area of tropical medicine.
- In-depth interviews with stakeholders. This included internal ITM interviews; external interviews with representatives from the Flemish and federal government, universities and international organisations.
- A bibliometric analysis of the scientific output and quality of ITM, based on ITM's own publications database (provided by ITM's own library) and additional analysis by making use of the SciVerse Scopus publication database.
- Comparison of ITM with three European institutes in the field of tropical medicine. This benchmark focuses mainly on a comparison of the key characteristics of the institutes, their mission and objectives and the scientific performance. These institutes are: the Liverpool School of Tropical Medicine (LSTM) in Liverpool (United Kingdom), the Swiss Tropical and Public Health Institute (Swiss TPH) in Basel (Switzerland) and the Bernhard Nocht Institute of Tropical Medicine (BNI) in Hamburg (Germany).
- Peer review by a panel of experts in the field of tropical medicine: Prof. Christine Katlama, Prof. Erwin Schurr en Prof. Jimmy Volmink. During the peer review that took place on 4 and 5 June 2012 in Antwerp, several employees of ITG and representatives of the Flemish government were interviewed. The presentations held by ITM during this review are included in the analysis.

The Institute of Tropical Medicine

ITM has the statutory objective *"to provide and promote scientific research, education and services in their broadest sense in the field of human and animal health, with particular emphasis on tropical and related diseases and on health problems and health in developing countries"*.

Its core tasks include teaching, conducting research and providing medical and scientific services, including to society at large. The scope of its work covers any disease or health problem in humans and animals related to the specific ecological and socio-economic situation in developing countries.

ITM operates currently under various agreements with regional and federal authorities in Belgium. These are agreements with the (Flemish) Department of Education and Training, the (Flemish) Department of Economy, Science and Innovation (EWI), the (Flemish) Department of Welfare, Health and Family, the Directorate-General for Development Cooperation and Humanitarian Aid (DGD) of the Federal Public Service (FOD) Foreign Affairs, Foreign Trade and Development Cooperation. These agreements also provide the funding for ITM. In addition to the funding provided by the different governments, ITM receives funding from the following sources:

- External funding, including project financing (from FWO², IWT³, the European Commission and other international sources) and contract research;
- Medical services: fees and grants from within the healthcare system for consultations and travel advice;
- Private, non-earmarked income such as tuition fees, overhead, donations and federal tax rebates to promote science.

In the period 1995-2010, the budget of ITM more than tripled, mainly due to a sharp increase in external programmatic funding of DGD and tax rebates from the federal government aimed at the promotion of scientific research. In 2011, the budget of ITM amounted € 50.4 million, of which 22% was core funding from the Department of Education and Training, 22% was related to the framework agreement with DGD, 21% was own income and federal (tax) incentives, 14% revenue from medical services, 15% income of external projects, 3% of EWI, and 3% other income (from investments and operations). From 1 July 2004 to June 30 2007, ITM received € 750,000 (for the entire period) from EWI⁴. Since 2008, by virtue of the agreement ‘Scientific Research ITM 2008-2012’⁵ between ITM and EWI, this increased to an (planned) annual contribution of € 1.75 million. In 2010 and 2011 however the annual contribution was reduced to € 1.6 million as a result of the general cutbacks within the Flemish government and therefore within EWI.

On average, ITM devotes 65% of its budget to education and research. This also includes development and reference projects. Besides education and research, ITM spends on average 14% of its budget on medical services and 21% on management and support services. In 2011, a total of 415 employees (FTE) of which 183 scientists worked for ITM. The total workforce is still growing, with an increase of 40 FTEs per year in 2008 and 2009. The category ‘temporary scientists’ grew fastest as a result of the DGD programme, funding from EWI and external project funding. The mobility of the temporary scientists is relatively low. The age distribution of the workforce of ITM is reasonably balanced, although the staff between 40-54 years is slightly in the majority compared to the group between 25-39 years. Twelve percent of the employees is 55 or older and will retire within ten years. Since 2008, an average of 31 FTE senior (permanent) scientists is employed by ITM.

ITM is currently going through large (internal) reforms, and since 2011 it is reorganising its internal organisation and processes. Drivers for this reform were the results of previous evaluations and the internal project ‘ITM2020 +’ which stands for a reflection process on the organisation’s future mission, goals and values. Through the project, ITM aims to transform into an internationally renowned organisation in which scientific excellence and innovation are paramount, not merely for academic but also social relevance. ITM assumes that its partner institutions in developing countries eventually will take over ITM’s national and regional reference tasks autonomously. This organisational reform and shift in focus requires a cultural change, both on the management as well as the staff and internal organisational levels.

In 2010, the Board of Governors decided, partly based on the recommendations of the management evaluation in 2009, that ITM needs to become a decisive, transparent, and efficient organisation to fulfil its scientific ambitions. This has driven the reforms

² The Research Foundation – Flanders (Fonds Wetenschappelijk Onderzoek – Vlaanderen).

³ The (Flemish) Agency for Innovation by Science and Technology (Agentschap voor Innovatie door Wetenschap en Technologie).

⁴ This agreement was – after a positive evaluation – renewed with a year and the subsidy (for the Clinical Trials Unit (CTU) and for that particular year) increased to 500,000 euro. Awaiting the new covenant, for ITM a funding of 600,000 euro was foreseen through an ad-hoc agreement.

⁵ Covenant Scientific Research Institute for Tropical Medicine July 1 2008 – December 31 2012. Convenant Wetenschappelijk Onderzoek Instituut voor Tropische Geneeskunde 1 juli 2008-31 december 2012.

of the organisational structure in which the number of scientific departments was reduced from 5 to 3:

- Biomedical Sciences (pathogens).
- Clinical Sciences (patients).
- Health (populations).

During the reform a number of interdepartmental research centres were created as well in order to encourage an interdisciplinary research approach. Initially, such research centres are foreseen in the domains of HIV / AIDS, tuberculosis, malaria, neglected tropical diseases and international health and maternal and child health⁶.

The following sections present the main findings and conclusions of the evaluation structured according to the identified topics: scientific quality and excellence of research, the role and position in the research landscape, organisation and management of the research, draft policy / strategic plan 2013-2017. Finally, the recommendations are listed.

Scientific quality and excellence of research

On a formal level, ITM has not only achieved, but also greatly surpassed the vast majority of the key performance indicators (KPIs) that are part of the legal agreements with different funders. These KPIs not only capture quantitative research output but also research quality. However, in 2011 a small number of targets for the performance indicators (KPIs) relating to the publication output have not been reached. The evaluation shows that to further improve its research performance and innovative productivity, ITM needs to modernise the way science is being conducted, with a stronger emphasis on competitiveness, both internally and externally. The ITM staff includes a number of highly competent basic, clinical and public health scientists. Nevertheless, productivity and quality across scientific staff is not homogenous and with large differences.

Over the last years however, there is a significant trend towards more and higher impact publications by ITM researchers. The publications include a wide range of scientific subjects, and there is frequent collaboration between researchers within the institute. Even more successful are the citation scores: The average number of citations per publication increased by 80% over the last 10 years, which is also an indicator of the increased research quality.

The EWI allowance is allocated by ITM as "Secondary Research Funding" (abbreviated as SOFI) and used for the strategic reinforcement of existing lines of research through doctoral research (SOFI-A) for the financing of innovative spearhead projects (SOFI-B) and for expanding the activities of the Clinical Trials Unit (CTU). Although the SOFI-programmes start to generate the first outputs, the size of those outputs is still limited.

Nevertheless, both ITM as well as the panel of experts regard SOFI-B as very important and essential for the institute since it allows the immediate implementation of the new research approach and supports therefore the transition to the new research organisation. The SOFI-B funding has already proven to be effective for the leverage of external research funding in competitive (European and international) programmes. Yet, there is also room for improvement. The balance in the SOFI-B projects could represent the research focus areas of the institute better. Currently the

⁶ The document 'De hervorming van het ITG op 1 juli 2011' (in Dutch) is online available on <http://www.itg.be/>.

clinical and public health research projects are absent, and seem to be less competitive than for instance the biomedical projects.

While human capacity building is an important aspect of the SOFI programme, the SOFI-A programme (i.e. PhD funding) could be revised. The innovative added value of SOFI-A is less clear than for the SOFI-B programme, and it is doubtful whether SOFI-A provides the most effective and efficient instrument to substantially raise the (innovative) research capacity in the institute. Even so, the programme has served a righteous purpose: it provided professionals with the opportunity to obtain a doctorate and capture and valorise the knowledge that they have built throughout their careers. However, the limited size and consolidating character at this moment in time neither provides ITM nor Flanders with much added value in terms of innovation.

The CTU is highly valued both by ITM and by the panel of experts. This unit is considered critical for the future of ITM. However, it could position itself much stronger as a national centre of excellence for clinical research in tropical medicine in Flanders and Belgium. The CTU has great potential, but currently has relatively few resources in place to focus on the large number of objectives and activities. Transparency of CTU activities, operations and financial performance need to be improved. It may also be necessary to develop more CTU specific KPI's that properly reflect these efforts and activities of the CTU.

The role and position in the research landscape

ITM takes a unique and autonomous position in the Flemish research landscape. In order to preserve the cumulative and synergistic expertise in human and veterinary medicine in low and middle-income countries, it is strongly recommended to maintain this autonomous status. ITM distinguishes itself by its degree of specialisation, status, network and expertise. The biomedical and international focus and activities of ITM moreover are very much in line with the specialisation profile of the Flemish research. Its autonomous status is however both an opportunity as well as a threat to ITM. Specific opportunities of this position are that the institute can combine education, research and services; and through its position the institute can easily reach its target groups for research and education, also in the South. Huge challenges of this position are that ITM cannot apply independently for secondary research funding (as provided by FWO, IWT and BOF⁷) that is available for universities, and that it cannot award doctorate degrees by itself.

To face these threats, ITM could further invest in forging long-term cooperation with national and international organisations, particularly with universities and research institutions. Even though the targets for the KPIs on cooperation have been largely met, the evaluation shows that current cooperation is opportunity driven, and takes mostly place on a project-to-project basis. A clear strategy or vision for structural cooperation could therefore be further developed. On a project base, ITM often cooperates with the Flemish universities, and maintains a particular close relationship with the University of Antwerp. The balance between cooperation and competition with the universities is however delicate, and institutional cooperation between ITM and the universities can be further consolidated. In addition, ITM's representation in and coordination of the Be-cause Health network improved its visibility in Belgium, but at the institutional level there seems to be less connection with the other actors in the Flemish and international research landscape. It is therefore felt that ITM could further improve its visibility and outward focus in general, and specifically in other large networks.

⁷ Special Research Funds

In an international benchmark with three other leading institutions in Tropical Medicine, ITM achievements are higher than the average. Even though ITM receives a relatively large portion of its income directly from the government (compared with the benchmark institutes), it also employs the largest number of researchers and includes a relatively large number of 'non-scientific' staff. ITM produces the second largest number of publications, after the Liverpool School of Tropical Medicine (LSTM). The productivity per researcher is virtually equivalent for the four institutes and trends show that ITM is the only institution with a stable productivity per researcher over the years, while it decreased for the others. The fact that ITM has published an increasing number of papers with the same income indicates a shift within the institute towards a stronger focus on research and research quality. The benchmark furthermore showed that ITM researchers co-publish with researchers from the largest number of different countries and in the period 2000-2009, the publications of ITM were most frequently cited in comparison with the publications of the benchmark institutions. Finally, the institute has awarded the largest number of master's degrees in recent years.

An international ranking by Scimago (2011) shows that ITM ranks after LSTM but ahead of the other two benchmark institutes. The ranking confirms the bibliometric analysis: ITM co-publishes relatively often with foreign organisations, and a relatively large proportion of the publications has been published in the most influential magazines. ITM scores poorer compared to its benchmark institutes in the 'excellence ratio': the number of publications that are part of the 10% most cited papers.

Organisation and management of research

The ITM organisation is currently going through a process of significant changes in its structure and management in order to promote a different culture in line with the goal of being a modern research organisation. Moreover, the growth of the institute makes professionalisation of management and administration inevitable. Since the reforms are still in process, it is too early to assess its impacts and although the process has already led to some internal frictions, the expectations of its positive impacts are fairly high. The general feeling prevails that the reorganisation will lead to modernisation, increased cooperation, greater competitiveness and a reduction of the administrative burden on academic staff.

In 2011, the contribution of EWI amounted to approximately 3% of the total income and is therefore relatively limited compared to the other structural funders. Currently, ITM operates within the framework of four different (management) agreements, which makes the governance structure quite complex. This complexity is manifested by the fragmentation of funding, the various evaluations of ITM that take place over a short period of time and the different systems of monitoring and accountability. The various evaluations that were carried out in the previous years as part of the different (management) agreements has led to a certain degree of dislike amongst the staff for this type of accountability. The staff does not want to be overloaded with reporting and providing information for different panels but rather carry out their research projects. It is therefore timely for the funders to re-align and combine their requirements for performance. By doing so, the internal allocation model could subsequently be linked to the performance indicators. The Scientific Advisory Board of ITM should also have a more prominent advisory role with regard to planning and strategy development, and should focus less on evaluation.

The research philosophy of the institute is very comprehensive and shows much social engagement. However, a clear research framework is still lacking and could be further developed. With the support of EWI, ITM started to develop such a research framework by initiating the SOFI programme, but the institute may be clearer in what the leading research issues and challenges are, how the different types of projects contribute to these challenges, and with what procedures research plans will be renewed. ITM could develop more critical mass by focussing on a select number of areas of strength.

The evaluation is very positive about the quality and enthusiasm of the ITM staff and the institute has achieved all targets – except one - with regard to doctorate degrees. However, according to the panel of experts there is room for improvement with regard to the training of doctoral students, and the coaching and career planning of the academic staff. ITM has already taken up this point for improvement by including training and education issues in its reform process and plans. Also, within the next ten years about half of the permanent scientific positions will open up due to the retirement of the current holders of these positions. This provides ITM with opportunities for renewal and innovation among the permanent staff and gives the Board the opportunity to make informed choices with regard to the allocation of permanent positions to internal or external people.

Draft policy plan

ITM's draft policy plan 'research 2013-2017' describes the objective to further strengthen the science-driven character of the institute. ITM wants to define 'grand challenges' in specific disease areas or health problems that will guide its research agenda. ITM wants to position itself as 'Global Campus'. In its draft policy plan, ITM calls for the continuation and strengthening of the secondary research funding provided by EWI in order to expand its innovative research activities and to strengthen international competitiveness. The interviews with the ITM management revealed that the vision for research and specifically the SOFI programme, is increasingly taking shape. The institute seems well aware of international trends and challenges in tropical medicine and seeks a good balance between hypothesis driven, demand-driven and opportunity-driven research.

The current plans are however still at an early stage and it is critical that the 'tacit' knowledge and vision are captured as well in the written plan. The consistency between the departmental and institutional plans could be further improved and linkages could be established in the draft policy plan. Timelines and budgets still need to be added as well as a clear SWOT analysis⁸ as basis for the strategy and objectives. Furthermore, the plan should contain a number of indicators to monitor and evaluate the long-term progress. It should also provide a clearer picture of the process of prioritisation and strategy development on an institutional level. It will need to provide EWI with information on how the institute will use the funding in the next period, how it wants to position itself in the research landscape and with what strategies collaboration with key partners will be strengthened.

The continuation of funding for innovative research is critical for ITM if it wants to carry on its leading role in the field of tropical medicine. Given the excellent performance in the past five years, and the potential impact of its research in the future, we support the recommendation of the panel to continue and even increase the funding of ITM substantially. In any case, the policy plan deserves further elaboration, definition and clarification, and some of the KPI's will have to be adjusted and revised.

Recommendations for the future

Recommendations to ITM

1. ITM has a long history as an institute of tropical medicine and is currently in the process of internal reforms and reorientation of its research assignment. This new strategic direction requires an increasingly research-driven organisation with a progressive approach towards scientific questions and underlying societal

⁸ ITM however presented an initial SWOT during the peer review but this has not been integrated in the draft policy plan yet.

challenges. We support this new direction and encourage ITM to further implement this strategic orientation and, in addition to its internal processes, be more open to external and international developments and opportunities to link with. In order to achieve this, the institute should not avoid internal and external competitiveness but further promote it.

2. We recommend that ITM cherishes its autonomous position, but at the same time seeks structural and strategic collaboration with national and international partners in order to guarantee future research funding and embedding in the research landscape.
3. Although ITM is well positioned in the international arena, its visibility within (inter)national networks could be further enhanced: successes may be exploited more and on a regular basis ITM could play a leading role in the (co)organisation of conferences, seminars and workshops. The ITM 'brand' may be propagated more actively.
4. ITM's new policy plan for research (2013-2017) could provide a better view on the research framework, including its leading research questions and the way the research departments and different projects will address those questions. It should furthermore elaborate on the processes that the institute would put in place to support the renewal of research plans. ITM should develop more critical mass on a selected number of strong research areas.
5. The SOFI-B projects are a potential leverage for the attraction of new research funding within competitive (national, European and international) programmes. There is also room for improvement: the balance in SOFI-B project should be better attuned to all focus areas of the institute.
6. The SOFI-A programme needs to be revised. Its added value for innovation did not become clear during the evaluation, and it is questionable whether this programme is the most effective and efficient instrument to increase the institute's innovative research capacity.
7. ITM's Scientific Advisory Council should play a more prominent advisory role with regard to planning and strategy development and it should pay less attention to evaluation. This advisory council could consist of eminent international scientists with a clear view on the trends and developments in the various research areas where ITM is active. To be effective, they should meet at least once a year (either physically or by means of a virtual meeting) to review ITM's strategic plans and advise on its future direction.
8. The research organisation could be further modernised by improving the education and training of doctorate and other researchers, by stimulating mobility and actively sharing the produced knowledge with the research community.
9. We recommend ITM to develop a clear monitoring and evaluation framework in line with its mission and objectives. By doing so, strengths and weaknesses could be efficiently mapped and the framework could be used as a management tool. Such a framework will support ITM's reporting system and legitimation to the funders. The framework should allow also for improved identification of the expenditures to and performance of research in the various categories. ITM's internal allocation model could then be linked to the performance indicators more easily.
10. ITM's final policy plan should provide a more extensive and precise overview of how the institute will establish priorities and goals at the institutional level. It will need to give insights into how EWI funding will be used in the coming period; how the institute reflects on its own position in the research landscape; and with what strategies it will strengthen the collaboration with key partners.

Recommendations to the Flemish government and EWI in particular

11. It is recommended that the funders discuss the burden the various (management) agreements and subsequent evaluations cause. Ideally, the timing and KPIs for research of the research agreement with EWI should be aligned with the management agreement of the department of Education and Training, and possibly with other departments and governments as well.
12. The continuation of funding for innovative research is critical for ITM if it wants to carry on its leading role in the field of tropical medicine. Given the excellent performance in the past five years, and the potential impact of its research in the future, we support the recommendation of the panel to continue and even increase the funding of ITM substantially. A coherent plan how this funding will be used to meet the objectives is a prerequisite.

Recommendations to both ITM and EWI

13. In ITM's future policy plan for research the performance indicators should be better aligned with those in the research agreement. In particular, the KPIs relating to impact (patents) and the CTU would need revision based on a clear set of objectives. Because these objectives are currently not clearly defined, it is not evident which KPIs reflect the objectives best. We recommend ITM therefore to discuss this internally and develop a proposal for this in consultation with EWI to better address the activities and objectives of ITM, and in particular those of the CTU.

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