

**Project**

**Building** **Scientific and Research Capacity to Respond to Emerging and Re-emerging Diseases (COVID-19)**

2020-2021

Financed by the Belgian Development Cooperation

Version 02 – 17/07/2020

## Summary sheet

|  |  |
| --- | --- |
| Total operating costs: | 4.000.000 EUR (including overhead) |
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| Summary:The project “Building Scientific and Research Capacity to Respond to Emerging Diseases in DRC (COVID-19)” is complementary to the existing framework agreement between ITM and DGD, aiming to improve the health situation of the Congolese population through capacity building of partner institutions and the support to the elimination of Human African Trypanosomiasis in DRC. By strengthening specific capacities to emerging diseases such as COVID-19 of 3 partner institutions and of potential new partners, the project should contribute to an appropriate preparation and reaction to the consequences of COVID-19 and other emerging diseases which regularly affect the population of DRC and may pose a global health security threat.Expected results are: 1. Congolese partner institutions and platforms that are better prepared to react to emerging diseases
2. Results of specific immediate COVID-19 related research collaborative projects
3. Strengthened ITM presence in DRC enables more effective support for scientific and research capacity

Project duration : from the date of signature – 31/12/2021 |

##

## List of partners and stakeholders

|  |
| --- |
| Partner / Stakeholder 1 |
| Full name and abbreviation : | National Institute for Biomedical Research (**INRB**)  |
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| Contact person: | Prof. Dr. Jean-Jacques Muyembe  |
| Description of the partner's role: | INRB will consolidate its role as a national reference laboratory and research center for emerging diseases. the INRB will develop its Clinical Research Center (CRC) and its coordination capacity for the surveillance of emerging diseases. |
| Start date of the partnership relationship: |  1998 |
| Partner / Stakeholder 2 |
| Full name and abbreviation : | Kimpese Health Research Center (KHRC)  |
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| Contact person: | Dr. Delphin Phanzu Mavinga |
| Brief description of the partner's role for each Outcome : | KRCC will develop as a reference research center at the provincial level.  |
| Start date of the partnership relationship: | Collaboration with the Evangelical Medical Institute (IME) in Kimpese-the parent structure- of the CRS dates back to the early 1980s. The specific collaboration with the CRSK in the framework agreements started in 2017. |
| Partner / Stakeholder 3  |  |
| Full name and abbreviation: | School of Public Health - University of Lubumbashi **(ESP)** |
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| Contact person: | Prof. Dr. Abdon Mukalay |
| Description of the partner's role: | The ESP will consolidate its role as an expert in the organization of health services, teaching and research, particularly in the control of emerging epidemics. The ESP will focus on research on the integration of control activities into basic health services.The knowledge centre CCSC, created by ESP and other public health institutions, will invest in secondary research (analysis and synthesis of knowledge) within the framework of prevention, preparedness and control of emerging diseases, CCSC  |
| Start date of the partnership relationship: | Since 2013 |

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# List of Acronyms

CASS Cellule d’Analyse en Sciences Sociales

CCSS Centre de Connaissance Santé en RDC

CEDESURK Centre de documentations de l’Enseignement Supérieur et de Recherche à Kinshasa

COVID-19 Corona Virus Disease 2019

CRC Centre de Recherche Clinique à l’INRB

CRSK Centre de Recherche en Santé de Kimpese

CSART Centre de Santé d’Apprentissage et de Recherche de Tshamilemba

DBS Department of Biomedical Sciences (ITM)

DCS Department of Clinical Sciences (ITM)

DEP Direction d’Etudes et Planification

DGD Direction Générale de Coopération au Développement et Aide Humanitaire

DPH Department of Public Health (ITM)

EIDRC Emerging Infectious Disease Research Center for East Africa

ESP Ecole de Santé Publique – Université de Lubumbashi

FA4 4th Framework Agreement between ITM and DGD

FETP Field Epidemiology Training Programme

HDSS Health Demographic Surveillance System

IME Institut Médicale Evangélique (Kimpese)

ITM Institut de Médecine Tropicale d’Anvers

INRB Institut National de Recherche Biomédicale

OCDE / CAD Organisation de Coopération et de Développement Economiques / Comité d’Aide au Développement

OS Objectif Spécifique

PNLTHA Programme National de Lutte contre la Trypanosomiase Humaine Africaine

RDC République Démocratique du Congo

RIPSEC Renforcement Institutionnel pour des Politiques de Santé basées sur l’Evidence en République Démocratique du Congo

SANRU Santé Rurale

UNIKIN Université de Kinshasa

UPC Université Protestante du Congo

WHO World Health Organization

# Context

## **1.1. Emerging diseases in DRC**

As in many African sub-Saharan countries, the COVID-19 pandemic has affected DRC from early March 2020 onwards, but the effects during the first months have been less intense than in many countries from other temperate areas of the global. However, this is changing and countries in the tropics such as India and Brazil, as well as several African countries, are experiencing an increase in cases. Based on modelling data, DRC will likely have increased impact of COVID-19 both on health and on the economy. There is a growing awareness that COVID-19 is there to stay and that it cannot be ignored. The feasibility of measures that have proven to be effective in other continents is doubtful, considering overcrowding, lack of water, day-to-day informal economy (and need to earn daily income to buy food). The health system is weak and at risk to be quickly overstretched. As observed with influenza in Africa, COVID-19 could have a different epidemiology resulting in devastating health effects spread over a longer time, due to untreated co-morbidities, malnutrition and other factors related to poverty. The collateral damage of COVID-19 on the health system is already significant.

In March 2020, DRC developed a national plan to respond to the COVID-19 crisis (135 million USD), including an important component focusing on laboratory and research[[1]](#footnote-2). However, this could not avoid low coverage of diagnostic capacity and a failed decentralization process, essential to guarantee an appropriate reaction to the COVID-19 epidemic. The number of (expensive) diagnostic tests available was limited from the start, partly explaining the very low number confirmed. For several weeks, the *Institut National de Recherche Biomédicale* (INRB) was the only institution capable of testing in the entire country. This situation has improved but testing outside the capital of Kinshasa remained a problem up to this date.

However, COVID-19 is only one of several emerging diseases in DRC. The number of Ebola outbreaks over the last years is increasing, new virus epidemics have been reported but also epidemics of measles and cholera continue to profoundly affect the Congolese population. Better understanding of transmission dynamics of emerging diseases, their epidemiology and impact on the health system and the Congolese population should lead to more appropriate containment measures, preparedness of the health facilities and reorganization of the health system.

The Institute of Tropical Medicine (ITM) has long been active in field research of emerging diseases in DRC. Through longstanding partnerships with Congolese institutions, it was involved in research activities of the latest Ebola and Chikungunya outbreaks. For COVID-19, it has been involved from the onset of the epidemic through the presence of 2 staff members. In the framework of a longer-term commitment, the Belgian development cooperation asked ITM to contribute to tackle challenges described above, by strengthening the capacity of Congolese institutions, so that these are better armed to prevent and to react to new or re-emerging diseases.

This new project should strengthen research responsiveness and resilience by **Building** **Scientific and Research Capacity to Respond to Emerging and Re-emerging Diseases.**  By investing in promising Congolese scientists and infrastructure, ITM will provide continuous support in research and science capacity building, leading to closer collaboration with Congolese partner institutions that should have an impact on the Congolese population. Considering the current pandemic, it will assure that it has an immediate impact on COVID-19 response activities. However, the scope of the project is beyond the COVID-19 crisis. The institutional capacity strengthening should enable Congolese institutions to better react to any (re-)emerging disease.

The project will be conducted from the date of signature up to 31/12/2021.

## **1.2. ITM in DRC**

ITM has long-standing partnerships and experience with collaborative research and support to disease control programs and the health system in DRC. ITM has always aligned to the Congolese health strategy combined with technical policy dialogue. Since the 1960s, ITM has invested in capacity development of promising scientists, in the development of Congolese organizations and in institution strengthening, even during periods when external support was limited. Hundreds of young professional Congolese have been trained at ITM, which are currently working within the Congolese health system at all levels in DRC. Such an approach aims at long-term results and has not always a direct impact on the Congolese population, but is an important asset to build upon, in view of sustainable results and institutional strengthening.

Currently, ITM implements the fourth framework agreement (FA4) financed by DGD, covering 10 partner countries of which also DRC, for the period 2017-2021. The DRC program includes 2 specific objectives as outcomes:

OS1. Strengthen the *capacities for health research* of three partner institutions (*Institut National de Recherche Biomédicale* - INRB, *Ecole Santé Publique de Lubumbashi* - ESP and the *Centre de Recherche en Santé de Kimpese* - CRSK).

OS2. Rationalize the fight against Human African Trypanosomiasis (HAT) by strengthening local health systems with the support of all partners (PNLTHA, INRB, ESP and CRSK).

This second objective of FA4/DRC, is part of a large international program jointly funded by the Government of Belgium and the Bill and Melinda Gates Foundation. ITM currently coordinates 5 HAT projects in partnership with the *Programme National de Lutte contre la Trypanosomiase Humaine Africaine* (PNLTHA) of the Ministry of Health. In this context, DGD financed an additional sleeping sickness control project called “HAT+”. For internal administrative reasons, this project is considered as an extension of the DRC program of FA4 with as objective:

OS3. Support the elimination of Human African Trypanosomiasis

In the same logic of grouping the projects supported by the Belgian government, the objective of the current project will be considered as a fourth outcome, i.e.

OS4. Building Scientific and Research Capacity to Respond to Emerging and Re-emerging Diseases in DRC (COVID-19)

Figure 1: Structure of the DGD-funded ITM program in DRC

ITM also conducts research and capacity development activities beyond the FA4 framework and the sleeping sickness elimination program. Relevant examples in recent years include outbreak research during Ebola and Chikungunya epidemics in DRC, collaboration in the fields of HIV, tuberculosis, cholera...... For the COVID-19 outbreak, ITM has been one of the few scientific partners present in DRC from the start of the outbreak and is involved in COVID-19 research worldwide. It collaborates with international studies (e.g. DNDi, NIH).

ITM also has a tradition of collaborating with other Belgian actors in the health sector of DRC (e.g. MEMISA, Artsen zonder Vakantie, Damiaanfonds, Louvain Développement de l’UCL, ....) and recently started a closer relation with Enabel, the Belgian Development Agency. With the latter, it has a framework agreement to facilitate exchange of expertise to enable quick response to needs and use each other strengths. Also on an international scale, ITM has an extended network, including the major multilateral (e.g. WHO, UNICEF) and governmental actors active in DRC in different domains (e.g. Global Fund, Tuberculosis, ..).

## **1.3. Preferential partners of ITM in DRC**

ITM has good relations with the Ministry of Health and its directions (e.g. the *Direction d’Etudes et Planification* - DEP). It has an extended network and history of collaboration with institutes and national control programs of a wide variety of infectious disease control (HIV, NTDs, ....). ITM staff have a tradition of working with a number of district hospitals (e.g. Kisantu) and universities (e.g. UNIKIN, ESP, ...) spread over DRC. This network is facilitated by the large alumni group of medical staff that obtained a master degree at ITM and is working at central, provincial and district level.

In the framework of FA4, ITM currently collaborates with Congolese partner institutions, of which INRB, CRSK and ESP will also be the major partner institutions for the current project.

***INRB***

The *Institut National de Recherche BioMédicale* (INRB) was created in 1984 and has been an important ITM partner for over 20 years. It is the national reference public health laboratory and research center in DRC for the large majority of infectious diseases, and it implements diagnostic, surveillance, outbreak investigation/response and research activities. INRB also has an increasing role in training and quality control. With the support of ITM, INRB has become a collaborating center for WHO in the framework of HAT diagnostics. The INRB reputation, built up with the support of ITM, led to investments by other donors. INRB acknowledges that the long-term support by ITM led to new opportunities. However, the success also means that INRB is becoming overstretched and that further investment and capacity development is needed to guarantee that INRB can respond to an increased and more diverse demand as reference laboratory and research center. For COVID-19, Prof Jean-Jacques Muyembe, the head of INRB, is leading the “riposte corona” in DRC. Also for other emerging diseases, INRB usually takes the lead (e.g. Ebola).

However, the different (re)emerging diseases put a heavy burden on INRB. Some staff are overstretched, and INRB cannot always adequately react on the demand, due to limited scientific, technical and supporting staff..

***Centre de Recherche en Santé de Kimpese (CRSK)***

Kimpese is located in Kongo Central, a province characterized by a lot of population movement, including to neighboring countries. Unsurprisingly, this province often faces emerging diseases and has been an epicenter of several epidemics in the recent past.

The *Institut Médical Evangélique* (IME) of Kimpese was founded in 1950 and has a longstanding collaboration with mycobacteriologists of ITM since the 1980s to support leprosy, tuberculosis and buruli ulcer control. In 2003, the collaboration was brought to a new level through long-term institutional support. The next step was the creation of the *Centre de Recherche en Santé de Kimpese* (CRSK) involving a consortium of 4 Congolese institutions: *Institut Médical Evangélique* (IME), *Université Protestante du Congo* (UPC), *Santé Rurale* (SANRU) & *Université de Kinshasa* (UNIKIN). The objective is to contribute to evidence based decision making and evaluation of health interventions in DRC.

CRSK is an important partner of FA4/DRC, which led to the development of a Health Demographic Surveillance System (HDSS) in the Health Zone of Kimpese (in collaboration with Burkina Faso and the INDEPTH network, a pioneer in health and population research. CRSK also plays an important role in the development of new surveillance methods and testing of new diagnostic tools for sleeping sickness control. This resulted in the acknowledgment by the international health community that research outside Kinshasa is not only possible but also essential to develop the Congolese health system. In particular for control of emerging diseases that often profoundly affect the province of Kongo Central, such a decentralized research center has a great potential.

IME has been selected as reference diagnostic center for COVID-19, confirming that IME and CRSK are also acknowledged by the Congolese authorities as reference center. However, as for INRB, the success risks to overstretch the research center, and the contrast between the quality of the research facilities compared to those facilities of the hospital (adjacent) is striking.

***Lubumbashi School of Public Health (ESP)***

The Public Health School ofplays an advisory role for the provincial and national Ministries of Health. With support of framework agreements with ITM, its scientific capacity has increased. Through FA4, it is the intention to reinforce its role as expertise center to organize health services, teaching and research. It also wants to reinforce the operation of the *Centre de Santé d’Apprentissage et de Recherche* of Tshamilemba (CSAR), which serves as an internship facility for students and staff.

Within the framework of the program "Institutional Strengthening for Evidence-Based Health Policies in the Democratic Republic of Congo" (RIPSEC) funded by the European Union, ESP has forged an alliance between three Schools of Public Health in DRC (Lubumbashi, Kinshasa and Bukavu) and INRB. This alliance aims to develop proposals for health policies, teaching and research programs, with the idea of providing optimal, evidence-based technical and strategic support to the various health authorities in the DRC in their role of improving the health of the DRC population. This collaboration is also at the origin of the creation of the ***Congo Health Knowledge Center*** (CCSC). Within the framework of prevention, preparedness and control of diseases in general and emerging diseases in particular, CCSC invests in secondary research (analysis and synthesis of knowledge) on the strengthening and resilience of the health system (shock absorption, adaptation to demand, transformation of services) in order to draw lessons from these epidemics and to generate evidence to feed and inform policy debates on this issue. In this perspective, the current COVID-19 pandemic is a priority on which the CCSC will be supported through the fellowship fund (see further).

***PNLTHA***

The *Programme National de Lutte contre la Trypanosomiasis Humaine Africaine* (PNLTHA) is in charge of HAT control in DRC. For ITM, PNLTHA is the direct partner for support of the HAT control program. The combination of implementing the health reform and the rapidly declining number of HAT cases will impact the role of PNLTHA in the years to come. The collaboration between PNLTHA and ITM has not always been easy, but the direction appointed at the end of 2017 enabled a new dynamic and different perspectives. PNLTHA will not be a partner for the current project. However, through the HAT elimination support, a network has been created with other Congolese institutions that can be of use for the application of the present project.

## **1.4. Theory of change**

Whatever the project or program, all interventions financed by the Belgian Government aim to improve the health of the Congolese population by contributing to improved access of quality health care in line with the 2030 Sustainable Development Goals. The concept “quality” includes aspects such as equity, effectiveness, efficiency, integration, safety and people-centeredness.

As the rationale behind this new outcome of “**Building** **Scientific and Research Capacity to respond to emerging and re-emerging Diseases”** contributes to same strategic object of the JSF DRC, the theory of change multiyear program (2017-2021) also applies.



**Figure 2**: Theory of change applied in the FA4 program

# Approach and underlying principles

## **2.1. General principles**

The entire country is at risk for COVID-19 and other (re)emerging diseases, but considering that the current project runs till the end of 2021, it was decided to work with INRB, CRSK and ESP, i.e. 3 partner institutions already involved in FA4. This approach should enable to provide immediate results because it can build on existing partnerships.

The project has been developed in close collaboration with these 3 partner institutions. ITM activities in DRC have always been based on the development of long-term partnerships with Congolese scientific institutions, in line with the national health policy. ITM takes the needs and ambitions expressed by these Congolese institutions as the starting point for discussions. ITM then assesses how to respond to these demands, considering ITM’s own strengths and comparative advantage in research, education and service delivery. Research capacity development, in line with OECD/DAC’s definition (i.e. capacity strengthening at individual, organizational and institutional levels), is central in all ITM’s collaboration activities, giving it a strong focus on sustainability. These principles have also been applied to develop the new project.

Priority will be given to the creation of a strong and sustainable enabling environment for developmentally relevant research, as the basis for long-term outcomes. This investment will be used as leverage for long-term capacity development and collaboration with partner institutions, especially as emerging diseases continue to challenge health and health systems in DRC. This also explains why the focus is on deepening and consolidating existing partnerships rather than creating new ones, while remaining open for cautiously exploring potential new reliable partner institutions. Also, ITM will assure involvement of and alignment with key actors and decision makers in the health sector, mainly the Ministry of Health and implementation actors, through continuous dialogue and sharing of research results, using formats appropriate for policy dialogues.

Given the time constraint, implementation modalities have to be adapted from the usual way of working within the FA4 framework. ITM has a tradition of making partners responsible for the implementation process to ensure ownership and sustainability. This policy called “switching the poles”, based on the principle of joint decision making, will be maintained and assured at all times. However, the most efficient way of implementing will be looked for, in order to respect the (short) timeframe and the partner institutions will also be provided with additional administrative and financial support to facilitate a smooth implementation. Progress of activities will be closely followed up so that timely decisions can be taken to adapt when needed. During the entire implementation of the project, feasibility of implementation will be an important aspect of follow-up.

## **2.2. Scope of the project.**

The project will boost the further development of the FA4 partner institutions as reference scientific entities based in Kinshasa, Kimpese and Lubumbashi. However, this does not mean that the impact will be restricted to Kinshasa, Kimpese and Lubumbashi. INRB is the national reference center, covers the national territory and has an international reputation. CRSK is rapidly building a scientific reputation at provincial level, has close links with universities in the capital and could serve as an example for research centers to develop in other provinces. ESP is part of a broader network of public health schools in DRC.

The current project should contribute to develop these partner institutions as platforms of excellence. Strengthening their material, human resources and organizational basis will consolidate their foundations and allow for capacity development in several domains. Considering the range of activities developed, the role and standing of these institutions, backed up by ITM’s network and reputation in national and international organizations, will allow for improving health systems capacity, health policy and ultimately health of the population, by reaching health zones and health facilities throughout DRC.

The support of ITM will improve the capacity to detect and confirm new cases and outbreaks of emerging diseases, and support appropriate response measures, taking into account challenges for patients and health staff, and organizational challenges for health facilities and health zones. Through operational research, the project will specifically provide evidence to answer to the many unknowns of the ongoing COVID-19 epidemic in DRC, and in sub-Saharan Africa. With its partners, ITM is among the first to initiate studies to understand “COVID-19 in the tropics”, to elucidate its epidemiology, transmission dynamics, disease spectrum, and social impact in the DRC context. Such insights will be directly relevant for guiding the appropriate use of diagnostics, treatment, and necessary adaptations in the health system. Indeed, there is growing awareness that contextual factors influencing the expression of COVID -19 in countries such as DRC have to be better understood, for developing appropriate approaches for control. This requires a multidisciplinary approach, combining technical, health and social expertise. New scientific insights generated, specific to the DRC context as well as possibly generalizable to the region, will be fed into control strategies and policies in real time, thanks to the close collaboration with Ministry of Health, and its partners.

## **2.3. ITM representation in Kinshasa**

ITM has always given priority to collaborations in DRC, conducting priority activities that received visibility both in DRC and internationally. In the past, ITM concentrated mostly on collaborative research projects, but more recently, ITM got more involved in implementation (e.g. ITM is the coordinating partner in support of the national sleeping sickness control program). At present, ITM is not officially registered in DRC, which has hampered its effectiveness and efficiency in various ways. Therefore, an official registration process has been initiated, not only deemed essential for increased effectiveness and efficiency of its work; but also to increase its impact at policy level. A representation should improve interaction with partners and policy makers, and also improve ITM’s response to emerging challenges, such as new outbreaks alerts (e.g. Ebola). It should facilitate the creation of new partnerships and enable to broaden the scope of activities, to further policy influence and timely impact of research findings. Such strengthened presence and visibility of ITM will facilitate continued support to the Congolese authorities with policy advice, and also to strengthen ITM’s role of providing timely relevant information and updates to the Belgian Embassy, the donor community and civil society organizations, to strengthen synergies and collaborations, not only with ITM, but also to support DRC partners to find external partners.

The ITM representation will consist of an ITM representative, supported by limited administrative, financial and logistical staff, financed via management costs of different projects. This administrative and financial staff will support the administrative and financial units of the Congolese partner institutions to better manage the funds allocated through the policy of “switching the poles” which is applied by ITM. Hence capacity development will be applied not only on scientific level but also for management. This approach of closer follow-up should also enable to mitigate risks and avoid a number of administrative and financial challenges that ITM faced in the past.

For the present project, scientific support staff of ITM will be recruited to facilitate the implementation of all operational program activities planned with the 3 partner institutions. This temporary staff should improve interactions with the partner institutions and different stakeholders, and contribute to obtain the expected results within the available timeframe. This staff will mostly be based in Kinshasa but can also operate from Antwerp.

## **2.4. Fellowship scheme**

Developing functioning platforms, conducting research and translating this into relevant policy support and training in the field of health requires qualified and dynamic human resources at all levels. The competent existing staff in the partner institutions is, however, often overstretched. A strong focus on investment in additional human resources is essential, including building “the next generation”. However, recruitment of additional staff is not the solution, given the obvious sustainability concerns in a context such as DRC. Also, there is a growing awareness among all partners that systematic topping-up of staff salaries to those already paid for a full-time job has to be avoided. Therefore, the option chosen to deal with the human resource challenge is to create a fellowship scheme. Such scheme will provide two types of opportunities to promising young researchers. The first is to some carefully selected individuals who will be given the opportunity to start or continue a PhD with a stipend supported by ITM and then work within one of the partner institutions. The second will be post-doctoral (after successful PhD) fellows who will be supported with early career grants for salary support. Such young researchers will have the opportunity to prove themselves through involvement in research projects or implementation activities, in close collaboration with and benefitting from senior researchers of partner institutions and ITM staff and help further their career. This requires clear agreements, strong guidance, close follow-up, and frequent evaluations.

An innovative fellowship scheme will be established, with variable duration, ranging from a few months to the full duration of the project, depending on needs, priorities, and opportunities, and will need to be adaptable to changes in the context. Such scheme will also be used to provide short training of existing staff and collaborators in the partner institutions.

## **2.5. Coherence, Synergy and complementarity**

ITM will align to the policy note on “Response of Belgian development cooperation and humanitarian aid to the challenges posed by the COVID-19 pandemic in partner countries in the health sector”, i.e.

* Responding to the health emergency
* Support to health care systems
* Invest in research to guide/contribute to the response to COVID-19
* Support international and multi-stakeholder coordination at global and local levels.

The focus will be on capacity development and operational research, but the other domains will also be taken into account. This implies that researchers and research institutions will be the direct beneficiaries. However, the support to hospitals through research will also improve the quality of services provided to patients visiting the health facilities involved.

ITM and its partner institutions want to strengthen their role as scientific reference in the health landscape in DRC. ITM will further develop its catalyst role in the national and international health community, engaged in the field of COVID-19, other emerging, and re-emerging diseases, including a health systems perspective. In dialogue with relevant actors in the health sector, ITM and its partners will pro-actively engage in policy support, advice and training.

An intensified collaboration with Enabel to deal with emerging diseases, is a logical extension of the growing collaboration over the last years in DRC and should lead to win-win situations. Enabel supports activities of several hospitals (e.g. Saint-Joseph in Kinshasa) where also activities of the present project have been planned. Evidence-based scientific results should enable Enabel and its partners to reach better results. ITM will also actively look for relevant synergy with Belgian actors in the health sector.

The current project should also help to broaden the network of the partner institutions. Several proposed studies are part of broader research spread out over sub-Saharan Africa, involving other international partners (e.g. IRD EDCTP, NIH-funded Emerging Infectious Disease Research Center (EIDRC) for East Africa with a focus on Coronaviruses and Rift Valley Fever virus).

# 3. Results and activities

The project is in line with the general objective of the FA4 program, which is to improve the health of the Congolese population by promoting access to quality health care.

The Specific objective of the project is **Building** **Scientific and Research Capacity to Respond to Emerging and Re-emerging Diseases (COVID-19)**, with 3 expected results, for which a range of operational activities would be developed, and indicative list of which is given below:

## **3.1. Expected result 1: Strengthen and develop partners and platforms**

**3.1.1. Further develop INRB as a national reference center** *subtotal € 844,013*

*Investments*

* + Develop IT infrastructure and training

Data and information management at INRB is limited considering the ambitions. The current project will invest in appropriate infrastructure to solve encoding problems, centralize data, assure safety of data, improve data collection and transmission and improve the data processing and centralization Therefor it would be good to optimize the digital database management and internal network system/ infrastructure. To reach the objectives, a collaboration will be set-up with CEDESURK (*Centre de documentations de l’Enseignement Supérieur et de Recherche à Kinshasa*).

* + Contribute to the development of the Clinical Research Centre (CRC) though training

Based on past and ongoing collaborations and the intention of INRB to build a Clinical Research Centre, ITM will contribute to the organization of such a centre and the training of dedicated DRC staff in all aspects of clinical intervention trials and other clinical studies. A hands-on training will include aspects as: (1) research ethics, Good Clinical and Laboratory Practices (GCP and GCLP); (2) the development of study protocols and associated essential documents such as informed consent forms; (3) submission to ethical committees and regulatory authorities; (4) good data management practices including the design of a study database, development of (electronic) case report forms, and clinical data review; (5) administrative aspects of study management (handling of study drugs, insurance contracts, registration of the study, study files; (7) development of study specific standard operating procedures; (8) management of (serious) adverse events and follow-up of reporting to competent authorities, ethical committees; (9) statistical considerations for preparing, conducting and reporting clinical trials. The clinical trial unit of ITM will also provide continuous support to the CRC for the study management of future clinical studies managed by the CRC.

* + Establish an urban clinical research site

Through INRB, urban clinical research sites will be developed in health facilities, such as *hôpital Saint-Joseph*. This should allow for a direct contact with hospitalized patients.

* + Strengthen the COVID-19 & other viruses diagnostic platform

We propose to strengthen the virology study platform at INRB in the long run to allow INRB to further accelerate as an international center of excellence on emerging viral diseases in Central Africa.

Due to ongoing supply chain shortages and logistical challenges with procuring and deploying diagnostic assays for COVID-19 a strategy of multiple assays being procured and deployed is being recommended. Although the GeneXpert platform is the primary choice due to the number of machines in country, familiarity of staff, ease of use, and minimal handling requirements of the system, current limitations on availability of cartridges across Africa will limit the use of this assay. As national reference laboratory, a larger multiplex (SARS-CoV-2 and other viruses) platform as the BioFire FilmArray Torch (12 modules) would be a solid alternative (price per test 4.3€). The final choice of platform will be made after further technical and market assessments.

ITM has supported INRB staff during the last 3 Ebola outbreaks in the country with providing diagnostics reagents and scientific support (diagnostics, epidemiology and clinical research). ITM was also involved in an Ebola ecology study following the Likati 2017 outbreak. INRB, IRD Montpellier and ITM are partnering in the EDCTP PEAU EBOV RDC project investigating Ebola RDT performance and applicability. Recently, ITM and INRB are partnering in a large NIH-funded Emerging Infectious Disease Research Center (EIDRC) for East Africa with a focus on Coronaviruses and Rift Valley Fever virus.

* + Strengthen the clinical immunology study platform

ITM is participating in the DNDi-coordinated multi-country clinical trial assessing the effect of antiviral therapies on recovery of COVID-19 patients in several countries in sub-Saharan Africa, called “ANTICOV trial”. ITM is leading its multi-country ancillary study investigating the impact of such treatment on the type, strength and duration of antibody and cellular immune responses in SARS-CoV-2 patients across sub-Saharan Africa.

We propose to expand and strengthen the current clinical immunology study platform (Scenario 1 includes a flow cytometry platform) at INRB to be able to engage Kinshasa as an additional and key study site in the ANTICOV-IMMUNO study and central lab for the DPH-population study at Kimpese (both research projects are covered further in the document under the section on research projects) and in the long run to allow INRB to act an immunological expertise center in current and future studies on emerging diseases in DRC.

* + Strengthen cryobank facility for sample storage
* A central cryobank enables to collect and store samples for later use and is a major asset for future research. The existing central cryobank facility at INRB requires an upgrade because the available space is becoming too crowded. Irregular provision of electricity and liquid nitrogen has to be tackled to mitigate risks of losing samples. For some of the COVID and emerging diseases research project, proper storage of specimens and derivatives is crucial. Existing engineers will be trained for maintenance of facility.

*Capacity development*

* Training on protection of staff involved in emerging diseases
* Training on use of new IT facilities
* Training of an engineer on maintenance of cold chain equipment (freezers, ultrafreezers, liquid nitrogen generator [already available at INRB]) and lab technicians on cryobank management (including specific software)
* Training for INRB to assess information, write proposals, search for grants, and conduct ethical and regulatory review in emergency settings;
* Training on regulatory review;
* Training on skills required to develop a research office;
* Training of management of logistics (incl transport and shipment of samples within DRC and beyond)
* Strengthen the skillsets (and data information systems) related to health data management and analysis

**3.1.2. Develop CRSK and adjacent hospital as a reference center in Kongo Central** *subtotal € 414,556*

*Investment*

* Strengthening the Clinical and Laboratory platform in IME hospital Kimpese

To conduct clinical care and research on COVID-19 (and other emerging diseases) management in adequate conditions, equipment and training are necessary for both its diagnosis and treatment.

Diagnostic tools include basic laboratory capacity (point-of-care hematology and biochemistry kits), molecular assays (GeneXpert device being the most suited for this setting), oximeters, electrocardiogram and digital chest X-rays and ultrasound.

Minimal requirements for treatment include the possibility to administer oxygen in addition to symptomatic treatment in medium-care units.

Both clinicians (medical doctors and nurses) and laboratory technicians have to be trained in safe clinical and nursing procedures and in laboratory sampling and processing respectively, with a particular focus on infection prevention and control, and on a close collaboration between disciplines.

An initial assessment of the material needs for the primary and secondary care will be conducted and a training plan for the medical, nursing and laboratory skills in emerging infectious diseases will be elaborated.

* Strengthening the research Laboratory platform in CRSK Kimpese

Renovate and equip the laboratory platform in CSRK, especially in regards to molecular and serologic assays to better diagnose COVID-19 virus and other emerging pathogens in a populations-based study area.

* Purchase of 1 ultra freezer for CRSK (-80°C)
* Develop IT infrastructure CRSK, adapted to increased research and data management
* Develop research infrastructure at CRSK to expand role of DHSS

*Capacity development*

* Both clinicians (medical doctors and nurses) and laboratory technicians have to be trained in safe clinical and nursing procedures and in laboratory sampling and processing respectively, with a particular focus on infection prevention and control, and on a close collaboration between disciplines.
* To offer training on social sciences and qualitative methodologies during outbreaks – starting at COVID-19 but broadening the perspective to other epidemics. The training will be done during two stays on site (unless there are travel restrictions) and will be continued through e-training and mentoring during research (budget 10,000).

**3.1.3. Development of ESP** *subtotal € 19,890*

*Investment*

* Construction or fitting-out of a room for video recording for distance learning or videoconferences

ESP has acquired equipment for the organisation of videoconferences. This equipment currently allows the organization of online courses at a time when compliance with barrier measures is required. This equipment is stored in the AED room for ease of use. This could pose a problem - in terms of storage or risk of breakage due to transportation - when learners can resume use of this audience. Having an appropriate room would allow for these distance learning activities and teleworking meetings with other partner institutions. This room will also be used to record the courses in audio or video.

**3.1.4. Fellowship scheme** *subtotal € 685,898*

Human resources are an important caveat to develop the partner institutions as platforms of excellence.

The project intends to provide opportunities to promising Congolese scientists and health staff, to focus on well-defined research outcomes.

Therefore, an innovative fellowship scheme will be established, with variable duration, ranging from a few months to the full duration of the project, depending on needs, priorities, and opportunities, and will need to adapt to changes in the context. Such scheme will also be used to provide short training of existing staff and collaborators in the partner institutions. The underlying principles are laid out in 2.4.

## **3.2. Specific COVID-19 related research collaborative projects**

A list of research proposals has been developed in consultation between ITM and the partner institutions, of which the following have been selected tentatively:

**3.2.1. Research involving INRB** *subtotal € 242,045*

**• Conduct health workers seroprevalence study in Kinshasa (INRB - DPH)**

Pre-doctoral track for an epidemiologist to develop protocols, conduct field studies evaluating seroprevalence of COVID-19 in affected regions of DRC and analyse the collected data. Once, this person trained, he/she can continue in a doctoral track, and at the same time can provide epidemiological support to the other departments of INRB.

**• Healthcare Environmental Microbiology Capacity (INRB - DCS)**

The healthcare environment has recently been acknowledged as a reservoir of multidrug resistant bacteria. Based on anecdotal observations in Benin, we believe the self-standing handwash stations (postes mobiles de lavage des mains) - which are widely deployed in epidemic Covid-19 areas - are at risk of contamination with Gramnegative bacteria. As part of a predoctoral research training (Alumna of the ITM short course “Containment of Antimicrobial Resistance”) we propose a cross-sectional microbiological study of handwash stations in selected sentinel sites in DR Congo and to assess end-user’s practices conducive to contamination of the water and soap reservoirs. The expected results will feed supranational infection prevention and control policies and provide INRB with equipment and expertise in environmental microbiology useful for future outbreak investigations.

**• Collaborative research on clinical characterization of COVID-19 disease in Kinshasa (INRB - DCS)**

INRB took a leading role in clinical research in the N-Kivu/Ituri Ebola outbreak, and intents to further strengthen its capacity and coordinating role in infectious diseases clinical research in DRC over the coming years. For this purpose a Clinical Research Center, coordinated by INRB and supported by a network of international academic institutes (such as ITM) and operational organizations, is currently being set up. Together with INRB and other international partners, ITM aims to participate and contribute to clinical cohort studies to further characterize COVID-19 disease in a context with a general younger population and presence of other comorbidities (malaria, TB, other infectious diseases…). The study protocols are currently being drafted. Such collaborative studies provide an excellent opportunity to strengthen the INRB Clinical Research Centre and ITM’s role in it. In the participating hospitals (as Saint-Joseph General Hospital, UNIKIN *Cliniques Universitaires*) clinical response and research capacity for COVID-19 and other emerging infectious diseases will be built up. We will reinforce for complementary lab testing (biochemistry, malaria, viruses, ...), small medical equipment, a clinical researcher fellowship, equipment for data collection, and provide on-site support for study set-up and monitoring by ITM staff (clinical, lab, CTU).

**• Research into cost effective and novel methods to conduct surveillance in DRC**

A major challenge in tackling COVID-19 transmission in DRC and other countries is the lack of data on frequency and spread of SARS-CoV-2 in DRC. First health-care access is limited in many areas, therefore possible cases do not present for care and testing for COVID-19. Second, testing is expensive and will require transport of the specimen to a special laboratory. Novel approaches to surveillance should be investigated to better understand the distribution of COVID-19. We propose two separate approaches:

1. Sewage surveillance. A recent study found SARS-CoV-2 in sewage samples. Since the receptor of SARS-CoV-2 (ACE2) is present in gut epithelium, this has biological reason. Moreover, infectious virus has been isolated from fecal material. This study aims to sample sewage from a hospital with a known number of SARS-CoV-2 cases to see if the virus can be detected. Samples will be taken over time and correlated to the number of patients in hospital. This approach can then be used in hospitals throughout the country to assess presence of SARS-CoV-2.
2. Mortality surveillance. COVID- disease is especially serious in the elderly who bear the highest risk of death. COVID-19 may also cause death without overt respiratory symptoms especially in persons with co-morbidities or elderly where the presentation may be more an exacerbation of an underlying condition. This study will take specimens from at least one hospital morgue persons over 60 years who die from non-traumatic causes or other definitive cause. The specimens will be respiratory swabs and a minimally invasive lung biopsy for PCR analysis.

**3.2.2. Research involving CRSK** *subtotal € 76,610*

**• Social sciences in Outbreak Research – research at Kimpese**

To conduct research with the CRSK social science team among the most vulnerable groups (including healthcare workers) during the COVID-19 epidemic, specifically on (i) access to prevention/care (ii) health seeking behaviors (iii) perceptions of COVID-19 (iv) perceptions of asymptomatic COVID-19 cases (v) adherence to prevention and control measures. Topic(s) and research question(s) to be defined through collaborative work with the social scientist at CRS Kimpese, Iyeti Youyou.

**• Markers of immunity for COVID-19 in Kimpese (CRSK- DPH-DBS)**

As the first wave of the COVID-19 pandemic appears to be waning in most European countries, in DRC no clear trend is yet apparent. An important question for DRC is what has caused the epidemic to wane elsewhere and to which extent. Herd immunity does not appear to have been achieved in any European country, with antibody prevalence usually in the order of 5% or below. In all probability social distancing and lock downs imposed have had a major impact but it is also possible that at least part of the reversal may be explained by the fact that many more successfully dealt with SARS-CoV-2 infection than the 5% at most that developed antibodies. It is known that in particular after mild infections, antibodies often fail to develop. In addition there may have been some degree of immunity as a result of earlier exposure to other, less virulent Corona viruses. For all these reasons we propose to establish a population based cohort in which we want to follow up over a one-year period the development of antibodies and the longevity of this response but also assess strength and longevity of the SARS-CoV-2 specific cellular immune response.

Already we have an approved study protocol to follow up a cohort of 800 persons in the district of Kimpese, based on two-monthly testing with an ELISA for IgM and total Ig. To this study we propose to add a component of cellular immunity. In this component frequency, phenotype and (poly)functionality of SARS-CoV-2-specific CD4+ and CD8+ T cells will be assessed by *ex vivo* stimulation of thawed PBMCs with SARS-CoV-2 peptide pools followed by multi-colour flow cytometric evaluations or enzyme-linked immune absorbent spot (ELIspot) assays (performed centralized on platform at INRB, Kinshasa). For flow cytometry, the panels will be targeted on CD4:8 subsets, effector/memory differentiation, effector production (e.g. IFN-y, IL-2, IL-4, IL-13, IL-6, IL-17, CD107a) and activation induced or exhaustion markers (e.g. OX40, CD137, PD1). If required, after magnetic cell enrichment, highly sensitive IFN-y and perforin Elispot assays will be used to define the frequency of low-abundant antigen-specific CD4+ and CD8+ T cells. As vital knowledge on effector functions is being generated in similar studies across Europe, US and Asia, the literature will be continuously reviewed, and selected markers updated accordingly.

**3.2.3. Research involving ESP** *subtotal € 70,994*

**• Strengthening of the health system: Assessment of the functioning of stewardships in 9 urban health districts of Lubumbashi in a context of COVID-19 and other emerging diseases**

*This intervention is a research-intervention that aims at strengthening the stewardship of the Framework Teams (FTs) for an adequate response and resilience of the health districts to COVID-19 in Lubumbashi. To achieve this objective, the following activities will be carried out: - Organize workshops to restitute the results of previous doctoral study to the health district teams; - Have the health district teams themselves analyze the situation of the response/resilience of the HZs to COVID. - Train the members of the of the (by involving 2 members of the Provincial Health Inspectorate -IPS, 2 members of the Provincial Health Division -DPS) on stewardship in response to COVID; - Accompany the health districts in 18 months in their health zones (with DPS, IPS); - Carry out systematic documentation and dissemination (5 publications) of the experience for capitalization and mutualization.*

**• Decision-making in a crisis context: coordination of state and non-state actors in the urban environment in the context of improved preparedness for the control of emerging diseases. (ESP – DPH)**

The CCSC seeks to strengthen its capacity in the area of evidence analysis and synthesis related to emerging diseases. This study aims to strengthen the capacity of the CCSC to develop, conduct and interpret health policy and decision-making analyses through a study of decision-making in the context of the COVID-19 pandemic. Specifically, the study will examine the development and coordination of control strategies, including emerging collective action, during the COVID-19 outbreak in Kinshasa. The aim is to identify lessons learned and contribute to strengthening the resilience of the health system to emerging diseases in the urban context. The design is a mixed methods study with a literature review of COVID policies, interviews with key actors and a context analysis. This study will take place over 18 months. Two validation workshops with research stakeholders will be organized.

## **3.3. Scientific support for all activities of result 1 and 2.** *subtotal € 475,000*

For the present project, scientific support staff of ITM will be recruited to facilitate the implementation of all operational program activities planned with the 3 partner institutions. This direct scientific support should guarantee that the investments are used in an appropriate way, that guidance of the “fellows” is assured and that research activities lead to quality results within the time frame. This staff will mostly be based in Kinshasa but can also operate from Antwerp.

## **3.4. Expected result 3: Strengthened ITM presence in DRC enables more effective support for scientific and research capacity[[2]](#footnote-3)**  *Subtotal € 458,100*

During the first months of the outbreak of COVID-19, ITM assured logistic, coordination,  technical and policy support through Inge van Cauwenberg and Prof W. Van Damme who was temporarily based in Kinshasa. The additional benefit of in-country presence was very clear to all partners especially with travel restrictions.  The intention is to continue this dynamic, which includes several dimensions, through expertise on the spot and on the occasion of visiting expertise from Antwerp. The following activities will be conducted:

**3.4.1. Provide immediate technical and policy support and guidance to Ministry of Health in DRC and other stakeholders on COVID-19 response.**

ITM will continue to participate in the “Conseil Scientifique de la Riposte Corona” and advise the Ministry on demand. It will regularly inform the DRC Government of results research in DRC and internationally ITM can contribute to a better coordination of COVID-19 support to the selected partner institutions.

**3.4.2. Provide a point of contact as necessary mechanism for Belgian, European and International institutions**

ITM will be available for the donor community and international institutions to exchange information and provide insight. which can also serve as a point of contact for Belgian, European and international institutions. This initiative can facilitate the information exchange between the different stakeholders in DRC, and is a mean to strengthen the cooperation between all partners.

# **4. Risk analysis**

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk description** | **Probability** | **Impact** | **Risk mitigation plan** |
| Instable context of DRC leads to difficult working conditions and unsafety | medium | Medium  | The project has been set-up in a way that needed risky movement and travelling can be avoided with minimal impact on expected results |
| The lockdown measures for COVID-19 are prolonged (e.g. persistence of travel ban, limitation of human interactions, … ) impacting the implementation of the project | Medium to High | Low to Medium | - Strong delegation of activities to DRC- Technology and practice of interaction via social media have been developed during the lockdown in Belgium Backup and follow-up of the project from Antwerp  |
| Time consuming procedure related to filling staff expert positions | Medium  | Medium  | ITM started already looking for people with extended experience in DRC and/or being on the spot already so that engagement will immediately result in effective input. |
| Implementation of subprojects delayed and not providing expected results  | High | High | Subprojects will we closely followed-up. If there are indicators that the progress is too slow, decisions should be taken to stop and invest in other subprojects |
| The partner institutions are overburdened by the extra workload to start all kind of new research projects at the same time  | High  |  High  | The flexible fellowship scheme should alleviate this problemMeasures will be taken to assure that not everyone counts on the input of the same person  |
| Investment subprojects and logistics are delayed | High  | High  | Project follow-up will focus on investment sub-projectsThe ITM representation will recruit expertise with extended experience in DRC |
| Flexible management and many subprojects leads to diminished ownership by the partner institutions  | High | High  | The ITM representation will continuously be in contact with the Congolese colleagues in charge of the partner institutions |
| Problems of corruption and fraud emerge as reported in a recent study by DFID | Medium  | High  | ITM has invested in a new accountancy tool that provides more insight in bookkeeping:Several measures are taken to reinforce financial control mechanisms |

# **5. Budget**

## **5.1 Budget Detail**

The below table presents a breakdown of the total budget according to the 3 expected results with the corresponding indicative activities per partner.

|  |  |
| --- | --- |
| **1 Strengthen or develop partners and platforms** | **2.004.354,30** |
| **1.1 - Further develop INRB as a national reference centre** | 884.013,20 |
| Develop IT infrastructure  |  |
| Contribute to the development of the Clinical Research Centre (CRC) |  |
| Establish urban clinical research site |  |
| Strengthen the COVID-19 & other respiratory viruses diagnostic platform    |  |
| Immunology |  |
| Strengthen cryobank facility for sample storage |  |
| Capacity development  |  |
| **1.2. Develop CRSK as a field research centre** | **414.553,50** |
| Clinical and Laboratory platform strengthening in IME hospital Kimpese |  |
| Purchase of 1 ultra freezers for CRSK (-80°C) |  |
| Develop IT infrastructure CRSK |  |
| Develop research infrastructure at CRSK to expand role of DHSS |  |
| Strengthening the research Laboratory platform in CRSK Kimpese  |  |
| Capacity development  |  |
| **1.3. Development of ESP** | **19.890,00** |
| Videoconferencing facilities for online communication and teaching |  |
| **1.4. Fellowship scheme** | **685.897,60** |
|  |  |
| **2 Specific COVID-19 related research collaborative projects** | **389.648,50** |
| **2.1 Research involving INRB** | **242.045,00** |
| Healthcare Environmental Microbiology Capacity |  |
| Conduct health workers seroprevalence study in Kinshasa  |  |
| Clinical characterization of COVID-19 disease in Kinshasa  |  |
| Cost effective and novel surveillance methods |  |
| **2.2. Research involving CRSK** | **76.610,00** |
| Markers of immunity for COVID-19 in Kimpese  |  |
| Social sciences in Outbreak Research – research at Kimpese  |  |
| **2.3 Research involving ESP** | **70.993,50** |
| Strengthening of health system capacities: Covid-19 stewardship  |  |
| Emerging diseases crisis context decision making |  |
|   |   |
| **3 ITM staff (scientific support to the partners for development of platforms and research)** | **475.000,00** |
|  |  |
| **4 Strengthened ITM presence in DRC enables more effective support for scientific and research capacity** | **458.100,00** |
| Investment costs (building, vehicles, office equipment,...) | 330.000,00 |
| Operational costs (maintenance, communication, international travel, service contracts,…) | 128.100,00 |
|   |   |
| **GRAND TOTAL** | **3.327.102,80** |
| **Evaluation and audit (min.1%)** | **37.383,18** |
| **Management costs general (max 10%) - including management @ ITM and local** | **373.831,78** |
| **Structure costs (max 7%)** | **261.682,24** |
| **GRAND TOTAL**  | **4.000.000,00** |

## **5.2 Outcome specific budget (T4 Table)**

As this programme will be a new outcome integrated in the multiyear programme, the same budgetary rules apply. As requested by DGD the budget is presented in the required below formats.

The outcome specific budget (T4 table) includes the **operational budget** only (= total budget - overhead costs; see XLS-T1). Applied to this €4M programme the operational budget will be €3.327.102,80 (€4.000.000 - €672.897,20).

This operational budget is broken down according to the place of expenditure in:

1. Partners budget
2. Collaborations (not applicable)
3. Bureau local
4. Siège

This is followed by a further breakdown per year and per type of expenditure (investment, functioning costs, personnel).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 2017 | 2018 | 2019 | 2020 | 2021 |  **Grand total**  |
|
| **Coûts opérationnels** |
| **1. Partenaires** |  |  |  | **703.913,87** | **597.480,03** | **1.301.393,90** |
| Investissement |   |   |   | 352.700,00 | 31.000,00 | **383.700,00** |
| Fonctionnement |   |   |   | 348.213,87 | 555.680,03 | **903.893,90** |
| Personnel |   |   |   | 3.000,00 | 10.800,00 | **13.800,00** |
| **2. Collaborations**  |  |  |  |  |  |  |
| Investissement |   |   |   |   |   |  |
| Fonctionnement |   |   |   |   |   |  |
| Personnel |   |   |   |   |   |  |
| **3. Bureau local** |  |  |  | **343.100,00** | **148.600,00** | **491.700,00** |
| Investissement |   |   |   | 305.000,00 | 25.000,00 | **330.000,00** |
| Fonctionnement |   |   |   | 38.100,00 | 123.600,00 | **161.700,00** |
| Personnel |   |   |   | 0,00 | 0,00 | **0,00** |
| **4. Siège** |  |  |  | **886.989,70** | **647.019,20** | **1.534.008,90** |
| Investissement |   |   |   | 537.000,00 | 0,00 | **537.000,00** |
| Fonctionnement |   |   |   | 189.989,70 | 332.019,20 | **522.008,90** |
| Personnel |   |   |   | 160.000,00 | 315.000,00 | **475.000,00** |
| **Total CO :** |  |  |  | **1.934.003,57** | **1.393.099,23** | **3.327.102,80** |
| Investissement |  |  |  | **1.194.700,00** | **56.000,00** | **1.250.700,00** |
| Fonctionnement |  |  |  | **576.303,57** | **1.011.299,23** | **1.587.602,80** |
| Personnel |  |  |  | **163.000,00** | **325.800,00** | **488.800,00** |

As for the rest of the multiyear programme and according to the DGD format the operational budget includes also operational costs for the “siège” which are specifically related to the operational activities.

* + Investments: for efficiency reasons some equipment and reagents are budgeted and bought in Belgium, but shipped directly to the partner. Therefore they appear as ITM investments in the budget.
	+ Functioning costs: this includes the bench fees related to the fellowship programme (based on existing PHD fellowship regulations) as well as the missions of the scientific operational staff.
	+ Personnel: scientific ITM staff (payed in Belgium), involved directly in the implementation of the projects, be it stationed for longer periods in DRC or working from ITM with short term missions.

For the bureau local no personnel costs are foreseen as the scientific support staff is budgeted on the siège component, the administrative staff will be covered by management cost and other local personnel, such as drivers, will be covered by service contracts.

The T4 budget table of the DGD format also includes an overview of the operational budget per partner:

|  |
| --- |
| **Partenaires Total** |
|  | **2017** | **2018** | **2019** | **2020** | **2021** | **Total** |
| **Total Partenaire 1 – INRB** |  |  |  | **865.791,50** | **260.266,70** | **1.126.058,20** |
| **Total Partenaire 2 – CRSK** |  |  |  | **375.833,50** | **115.330,00** | **491.163,50** |
| **Total Partenaire 3 - ESP** |  |  |  | **27.804,00** | **63.079,50** | **90.883,50** |
| **Total Fellowships** |  |  |  | **171.474,57** | **514.423,03** | **685.897,60** |
| **Total ITM scientific staff support** |  |  |  | **160.000,00** | **315.000,00** | **475.000,00** |
| **Total Partenaires :** |  |  |  | **1.600.903,57** | **1.268.099,23** | **2.869.002,80** |

The amounts in this table reflect the total budget per partner irrespective of the place of expenditure. This includes at partner level the local operational budget and operational ITM budget (siège and bureau local) foreseen to support the activities.

In addition the partner institutions receive scientific support provided by ITM staff supporting the capacity strengthening activities as well as through a local fellowship programme. These 2 components are not broken down per partner. As a result total budget for the partners is as high as 86% of the operational budget and 72% of the total programme budget.

## **5.3 Overhead costs (T1 table)**

The T1 table that represents the overhead costs of the whole multiyear programme, to which this new outcome has been added, has been adapted accordingly.

According to DGD regulations, in line with the multi-year programme and approved by D3 and the budget for this new outcome includes the following **overhead costs**:

* Structure costs (maximum 7%): **261.682,18 €**
* Management costs (maximum 10%) **373.832,78 €**
* Evaluation and audit costs: 1% (compulsory) **37.383,24 €**
* **TOTAL 672.897,20 €**

The management cost includes administrative personnel at the bureau local as well as the siège in Antwerp.

# **6. Management**

Considering the short time of the implementation period, the management of this part of the FA4 project will be based on the principles of lean management, not only taking into account the variety of expected results but focused on continuously assessing whether it is realistic that the expected results can be provided within the given timeframe. Therefore, the most efficient way of implementing will be a continuous concern. A close follow-up of the progress of the development of the platform and the implementation of all research projects will be assured, and if necessary, decisions will be taken to reorient the activities.

During the preparation of this project, ITM and the partner institutions consulted to establish a list of potential activities of which a first restricted list of activities was tentatively withheld. This list will be used as a basis for potential reorientation but other proposal can also be considered. Reorientation of activities will be decided by applying the rules and regulations applicable within the framework agreement between DGD and ITM. However also the Belgian Embassy will be implicated in this process.

In addition to the €4M, FA4-funding will be reoriented to support of COVID-19 activities in DRC from the balances of the Multi Year Program (2017-2021). ITM anticipates that the impact of COVID on the Multi Year Program may lead to underspending in different country programs. These balances are estimated between €500.000 and €1M and will become clear in the coming months.

As in other components of the multi-year programme, ITM staff will provide scientific support for capacity strengthening activities. As this “ITM scientific support” is an integrated part of the operational activities it is budgeted as ITM personnel cost as opposed to the ITM management staff which is covered for by the management costs.

# **7. Motivation with regard to OECD/DAC criteria**

## **7.1. Relevance**

The expected changes target strategic axis 4 "Health" and more specifically the **strategic targets** as stated in the Common Strategic Framework of DRC:

**4D**: Promote equitable access to health care, with particular attention to isolated and marginalized areas and vulnerable populations (including orphans, street children, the disabled, widows, the elderly, etc.), and for the management of neglected health problems (mental health care, blindness, zoonotic diseases - following the "One Health" concept) and chronic diseases (diabetes, hypertension, etc.), with a view to achieving universal health coverage.

**4G**: Strengthen the prevention of transmission, the supply and capacities for diagnosis, treatment, monitoring and control of contagious diseases (HIV, tuberculosis, malaria, leprosy, sleeping sickness, neglected tropical diseases, ...).

Source: Common Strategic Framework DRC - Final version 2016

We want to contribute to the achievement of the strategic target "*Promote equitable access to health care, towards universal health coverage*" by strengthening the capacities of the institutions involved, as explained in the Theory of Change. In the partner institutions, we are investing in human resources, technical platform, collaborations, and management so that they are better armed to conduct research autonomously and propose evidence-based solutions to health priorities in DRC. These enhanced capacities of the partner institutions will impact health policies in the DRC. The research conducted by the three institutions will analyze relevant and current health problems in order to propose efficient solutions for the control of communicable diseases and other priority health problems.

In this way, our program is in line with the **objectives of** the Belgian development **cooperation** "*which refuses any logic of dependence and resolutely opts for an approach based on opportunities and empowerment*" (Source: Law of 19 March 2013 amended by the Law of 16 June 2016). The (extended) FA4 program is part of one of the four thematic clusters, in particular the Human and Social Development cluster in which university cooperation and the health sector are identified as important themes. In line with Belgian policy in this area, we attach great importance to good governance, and our program supports partner institutions in their efforts to strengthen their administrative and financial management. The support proposed in this project will be in line with the **Strategic Note** "Health System Strengthening Strategy (HSSS)" produced by the Congolese Ministry of Health and supported by Belgian cooperation. Our partners will be encouraged to continue this course of action.

The objective added to the FA4 program following the COVID-19 pandemic, emphasizes the relevance of continued research and scientific capacity building to respond to emerging diseases. Pandemics explicitly highlight the need for joint research projects to better understand and limit the overall impact of emerging diseases. This adaptation to the program increases the relevance of the intervention by responding flexibly to a global and DRC emergency. The addition of a new partner (CCSC) will increase policy relevance by searching for evidence available in the international literature, synthesizing it, and translating it into policy briefs for health authorities.

## **7.2. Effectiveness**

Our program aims to develop scientific capacity that will produce new, relevant and robust knowledge. The **actors of** our action are not only our partner institutions, but also colleagues from health services and other actors active in the health sector in DRC. Our joint research will lead to the production of evidence that should lead to policy recommendations for the country. The target group for these recommendations are the Ministry of Health, policy makers and health services.

As with the other objectives, the results formulated under OS4 should lead to obtain the objective. A strengthened presence of ITM in DRC will accelerate the establishment of joint research projects, as well as the strengthening of the partners' capacities. The in-country presence will allow us to exchange more efficiently and flexibly with partners who have profound expertise in emerging diseases (e.g. Ebola) and as a result to act more effectively in a time when rapid action counts more than ever.

## **7.3. Sustainability**

Our program aims for sustainability through its substantial investment in building scientific capacity for health, and by its very nature has **a multiplier effect**. Beyond ad hoc scientific collaboration, we are proud to note that Congolese researchers who have benefited from our support in the past are now conducting research independently. All doctoral students who have been trained through our previous Framework Agreements have all, without exception, returned to DRC to take on tasks of responsibility in the service of their country, as a Professor at the university and/or as an Executive in partner institutions.

**The technical sustainability of** our action is ensured by a consequent investment in the middle management of the partner institutions (doctoral training that enables graduates to take on the functions of Head of Department or Professor). By investing in training and improving the working environment in the partner institutions, we expect a sustainable effect on the scientific capacity of the partner institutions and, through them, a beneficial impact on health. In addition, investments will be made in the establishment of sustainable platforms for data collection and monitoring of emerging diseases.

**Financial sustainability** is built into our program by strengthening the administrative and financial management of partner institutions. More efficient management frees up resources for greater impact. By improving management transparency, we create more attractive conditions for other donors who wish to join the action. We already have many examples of how the long-term partnership between the ITM and the INRB, CRSK and ESP has made it possible to attract other funding from multilateral donors such as the European Union, often within a competitive framework.

**The social sustainability** of our action is ensured because the joint scientific production does not stop with the publication of scientific papers. We take care to disseminate the results to a wider audience than the international scientific community. Thus, the INRB organizes a scientific congress in the DRC every two years, which creates a platform for exchange between health professionals in the DRC itself. The partner institutions are committed to presenting their scientific results to political decision-makers in order to contribute to the reform of the health system and disease control, see for example the activity that is specifically listed by the ESP.

## **7.4. Efficiency**

It was developed based on our previous experience and taking into account budgetary constraints. Local purchasing is preferred where possible, but many laboratory inputs have to be purchased in Europe and transported.

## **7.5. Gender and Environment**

Our program takes into account the aspects " genre " and " environment"  in the following way: as shown in the Theory of Change (Figure 2), our action is supported by a number of values and principles that we share, including respect for the environment and attention to the gender dimension. Gender balance will be taken into account in this project at all levels: staff involved in the project, students recruited in the DEA at the School of Public Health in Lubumbashi, beneficiaries of services, etc. At no time will discrimination be made on the basis of gender. Positive discrimination in favor of the female gender will be encouraged in the recruitment procedures in case of equal competencies. Special emphasis is reserved for the environment (e.g. INRB action in favor of water quality, etc.) but our program does not specifically address this problem.

# **8. Annexes**

For completeness sake the following annexes represent 2 tables that have been duplicated the “Schéma de presentation d’un programme 2017-2021” (Version 07/06/2016) in order to make it possible for this narrative document to be used as a stand-alone document.

**8.1. Overview of activities and staff**

|  |  |
| --- | --- |
| Outcome: | **OS4. Building Scientific and Research Capacity to Respond to Emerging Diseases in DRC (COVID-19)** |
| IATI activity identifier : |   |
| Pays :  | République Démocratique du Congo | Cet outcome/objectif est-il couvert pas un CSC ? | *Oui* |
| Province(s) / Etat(s) ciblé(s) : | Subnational admin level 1 | subnational admin level 2 | subnational admin level 3 | Localité |
| Partenaires locaux ou parties prenantes : | INRB | National Kinshasa City | Prov. Kinshasa |   | Kinshasa |
| *ESP* |   | Prov. Haut-Katanga |  | Lubumbashi |
| *CRS* |  | Prov. Kongo-Central |  | Kimpese |
|  |  |  |   |  |
| Autre localisation de l'intervention : | *Nom Partenaire / Lieu* |   |   |  |  |
| Coordonnées GPS :  |  | Longitude : |   | Latitude : |   |
| Groupe-cible : | Scientific researchers |  |  |  |
| Bénéficiaires (nature, et nombre [lorsque connu]) |   | Directs : 150 chercheursIndirects : 85 Millions habitants en RDC |  |  |  |
| Secteur principal : | OS2 12250 Infectious Disease Control |
| Interactions des demandeurs : | n.a. |
| Autres organisations impliquées : | Organisation Mondiale de la Santé, Enabel, international and Belgian health development actor present in RDC |
| Coûts opérationnels (total) : |  € 3.327.102,80 (€ 4M = including management costs and structure costs). |

|  |
| --- |
| Markers : |
|   | Environnement | *1* |
| RIO : désertification | *0* |
| RIO : biodiversité | *0* |
| RIO : CC adaptation | *0* |
| RIO : CC mitigation | *0* |
| Genre | *1* |
| Bonne Gouvernance | *1* |
| Santé génésique, maternelle, néonatale et infantile (SGMNI) | *2* |
| HIV/Aids | *0* |
| Droits des enfants | *0* |
| Trade development | *0* |

**8.2. Log Frame aligned to FA4**

|  |  |
| --- | --- |
| **Cible(s) stratégique(s) : 4D (Source : CSC RDC)** | **Promouvoir un accès équitable aux soins de santé, avec une attention particulière aux zones isolées et marginalisées et aux populations vulnérables (dont orphelins, enfants de la rue, handicapés, veuves, vieux, PVVIH, …), et pour la prise en charge des problèmes de santé négligés (soins de santé mentale, cécité, maladies zoonotiques – suivant le concept de « One Health ») et des maladies chroniques (diabète, hypertension, …), en vue de la couverture universelle en santé.****Promote equitable access to health care, with particular attention to isolated and marginalized areas and vulnerable populations (including orphans, street children, the disabled, widows, the elderly, PLWHA, etc.), and for the management of neglected health problems (mental health care, blindness, zoonotic diseases - following the "One Health" concept) and chronic diseases (diabetes, hypertension, etc.), with a view to achieving universal health coverage.** |
| Objectif spécifique 4Outcome 4 | **Building Scientific and Research Capacity to Respond to Emerging Diseases in DRC (COVID-19)** |
| Hypothèses | As in multiyear programme (2017-2021):* 1. Security, political and institutional stability is assured.
	2. The necessary resources are available and used efficiently.
	3. Other areas of development are functional.
	4. Investment in human resources, scientific literacy, infrastructure, management and international collaboration will lead to relevant and excellent production of new knowledge for health.
 |
| **Indicators** | **Baseline** | **Milestone An 3** | **Milestone An 5** | **Sources de vérification** |
| Indicator 1: The capacity to diagnose emerging diseases of the national and provincial level has increased. | Minimal capacity to diagnose emerging diseases of the national and provincial level | not applicable | Equipment to diagnose is operational in KimpeseTests are available  | Project reporting |
| Indicator 2: The research results have contributed to evidence based understanding of the COVID-19. | Limited understanding of the COVID-19 transmission dynamics | not applicable | Every research project has delivered a report with output results.  | Research output |
| **Résultat 1** | **Strengthen or develop partners and platforms** |
| Indicators 1.1 Further develop INRB as a national reference center | Data management is assured continuously;The clinical research center is capable to prepare and follow-up autonomously studies;The virologic platform is capable of rapidly assessing viral epidemics;New infrastructure of the cryobank facility has been completed;Number of people trained that use the new skills in daily practice. |
| Indicators 1.2 Develop CRSK as a reference center | The laboratory of the IME hospital enables to offer more diagnostic tests for patients of the hospital.A clinical CRSK research project has been conducted or is ongoing. |
| Indicators 1.3 Development of ESP | The room for videoconferencing is operational. |
| Indicators 1.4 Fellowship scheme | Number of fellowships allocated. |
| **Résultat 2** | **Specific COVID-19 related research collaborative projects** |
| Indicators 2.1 Research involving INRB | A seroprevalence study in Kinshasa has been launched; The first results of a clinical study in Saint Joseph are available. |
| Indicators 2.2 Research involving CRSK | The first results of a cohort study are available;The first results of a study among vulnerable groups are available. |
| Indicators 2.3 Research involving ESP | The first results of a study to assess the impact of COVID-19 on mental health are available.  |
| **Résultat 3** | **Strengthened ITM presence in DRC enables more effective support for scientific and research capacity** |
| Indicators 3. | The number of written contributions from ITM to the Ministry of Health and the international partners. |
|  |  |
| **Typologie des activités :** |  |
|  | **1. Strengthen or develop partners and platforms**A list of strengthening activities has been developed in consultation between ITM and the partner institutions, of which the following indicative list have been selected: |
|  | **1.1 - Further develop INRB as a national reference center**Develop IT infrastructureContribute to the development of the Clinical Research Centre (CRC)Establish an urban clinical research siteStrengthen the COVID-19 & other respiratory viruses diagnostic platform  Strengthen the clinical immunology study platformStrengthen cryobank facility for sample storageCapacity development |
|  | **1.2. Develop CRSK as a field research centre**Strengthening the Clinical and Laboratory platform in IME hospital KimpeseStrengthening the research Laboratory platform in CRSK Kimpese  Develop IT infrastructure CRSK, adapted to increased research and data managementDevelop research infrastructure at CRSK to expand role of DHSSPurchase of 1 ultra freezerCapacity development |
|  | **1.3. Development of ESP**Construction or fitting-out of a room for video recording for distance learning or videoconferences  |
|  | **1.4. Fellowship scheme** |
|  |   |
|  | **2. Specific COVID-19 related research collaborative projects**A list of research proposals has been developed in consultation between ITM and the partner institutions, of which the following have been selected tentatively |
|  | **2.1 Research involving INRB**Healthcare Environmental Microbiology CapacityConduct health workers seroprevalence study in Kinshasa (INRB – DPH)Collaborative research on clinical characterization of COVID-19 disease in Kinshasa (INRB -DCS)Research into cost effective and novel methods to conduct surveillance in DRC |
|  | **2.2. Research involving CRSK**Markers of immunity for COVID-19 in Kimpese (CRSK- DPH-DBS)Social sciences in Outbreak Research – research at Kimpese |
|  | **2.3. Research involving ESP**Mental Health and Covid-19: Integration of a mental health package in the Centre de Santé d'Apprentissage et de Recherche de Tshamilemba (CSART), city of Lubumbashi (ESP – DPH) |
|  |  |
|  | **3. Scientific support for all activities of result 1 and 2.** |
|  | **4. Strengthened ITM presence in DRC enables more effective support for scientific and research capacity** |

1. RDC (2020) Plan de préparation et de riposte contre l’épidémie au COVID-19 en République Démocratique du Congo, Secrétariat technique COVID-19 Mars 2020. [↑](#footnote-ref-2)
2. As for all activities of ITM in DRC, ITM-Kinshasa (bureau local) will provide management support, including accounting, logistical and financial support (see chapter 2.3.). However, this should not be considered as operational activities and the budget will be covered by the overhead costs. [↑](#footnote-ref-3)