

Report on the External Evaluation

of

The Epidemiological Laboratory  
(EpiLab)  
Khartoum, Sudan

December 2009

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## Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CV	Curriculum vitae (personal resume)
DOTS	Directly observed treatment short-course
EpiLab	The Epidemiological Laboratory
FMoH	Federal Ministry of Health
GIS	geographic information system
Global Fund	The Global Fund Against AIDS, Malaria and Tuberculosis
HIV	Human immunodeficiency virus
IUATLD	International Union Against Tuberculosis and Lung Disease
LHL	Norwegian Heart and Lung Patients Association
MIS	Management information system
MoH	Ministry of Health
NCD	Non communicable diseases
NGO	Non government organisation
NORAD	Norwegian Agency for Development Cooperation
SNAP	Sudan National HIV/AIDS Programme
SNPA	Sudan National Tuberculosis Patients Association
SNTP	Sudan National Tuberculosis Programme
TAC	Technical Advisory Committee
TB	Tuberculosis
The Union	International Union Against Tuberculosis and Lung Disease
VCT	Voluntary counselling and testing (for HIV)
WHO	The World Health Organisation

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We are also grateful to the EpiLab section leaders and consultants who made time available from their busy clinical and academic schedules to participate in briefings. The team was delighted to have the opportunity to learn about the important work of the Sudan National TB Patients' Association and to have first hand reports from field coordinators and their leader.

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## Executive Summary

The Epidemiological Laboratory (EpiLab) was established in Khartoum, Sudan in 2005 as an independent, non-government, non-profit organisation. Its goal is to carry out operational research in public health and to identify, characterise and prioritise challenges to health status and health services delivery and to devise and demonstrate feasible strategies to overcome obstacles and improve the quality and effectiveness of health care delivery.

The Norwegian Heart and Lung Patients' Association (LHL) and the Norwegian Agency for Development Cooperation (NORAD) have provided financial and technical support to EpiLab since its inception. This support is expected to continue for a further three years. The External Review was commissioned to assess EpiLab's progress against its 2004-2009 Medium Term Strategic Plan and to consider its preparedness for transition to financial independence over the coming years.

The Review Team found that EpiLab has made substantial progress in its implementation of the Strategic Plan. Significant achievements have been made in its research and services development work. The methodology used is systematic, rigorous and effective. EpiLab identifies public health problems, gathers data and undertakes analyses, adapts international best practice guidelines, plans implementation in detail, introduces pilot testing in up to 14 healthcare delivery sites, provides effective ongoing supervision and support, evaluates progress, and adjusts implementation strategies prior to handing solutions over to the Ministry of Health for rollout. This was the pattern used by the National TB Programme in the early years of the decade to develop and implement "DOTS-all-over" in Sudan. The process has been applied to the management of asthma and of childhood lung diseases with impressive results. EpiLab also works in the fields of tuberculosis, particularly in the linkages between TB and HIV/AIDS; in tobacco use avoidance, particularly among TB patients and in zoonotic TB. EpiLab continues to work with the Ministry in promoting rollout of improved prevention and clinical management strategies.

EpiLab has earned the support and respect of the International Union against Tuberculosis and Lung Diseases (The Union) which has made EpiLab a collaborating centre. It has also developed an effective working relationship with the World Health Organisation for which it provides a number of consulting services. Similarly, EpiLab has formal and informal relationships with a range of academic institutions and senior clinical leaders in Sudan and internationally.

The development over the last five years is even more impressive when considered in the context of the complex economic and political environment in which the institute has functioned. It would be beneficial for EpiLab to have an overarching agreement with the Federal Ministry of Health that would provide an appropriate structure in which EpiLab and relevant divisions and departments of the Ministry could formulate memoranda of understanding or other cooperative agreements. The establishment of EpiLab as a cooperative centre for the World Health Organisation (currently under consideration) should strengthen the basis of a formal arrangement with the Ministry.

Information is central to EpiLab's work and success. It is the custodian of the national TB database and has data series related to its other work. A recent consultancy

provides wise advice on the ongoing management, integration, security and utilisation of these datasets. The recommendations call for modest investment. Following implementation of these recommendations, EpiLab's good capacity in data analysis and information utilisation will be further strengthened. In particular, more extensive use could be made of the national TB database and EpiLab's impressive development of geographic information to provide powerful and effective illustrations of the impact of gender and poverty on access and utilisation of services.

Mutually beneficial opportunities could derive from a closer working relationship between EpiLab's sections and the Sudan TB Patients Association that has an impressive network providing community support and health promotion. Together the organisations could significantly improve data gathering on social parameters, services effectiveness and patient outcomes as well as ensure the quality, accuracy and greater penetration of health promotion messages.

EpiLab has progressively expanded as it won research project funding and other financial support. It has added full-time and part-time staff members locating them in comfortable premises in suburban Khartoum. Management processes have been strengthened, but are not yet fully developed. The Review Team has made a number of recommendations for strengthening governance and organisational arrangements that are aimed at preparing EpiLab for greater financial independence. These include suggestions on the introduction of a Board of Management that represents the interests of the community and will support sound mechanisms of accountability, assist fund raising, and defend the institution's reputation against unwarranted attacks. The introduction of a Business Manager at an executive level is proposed together with recommendations for strengthening budget management, fund raising and developing policies on reasonable administrative overheads to be retained from research funding.

The Review has considered the internal organisation of EpiLab and has suggested ways in which it could be more effectively portrayed as well as ideas on how health promotion and health education activities could be given greater prominence organisationally and functionally.

The future as an independent, self funded institution will take EpiLab into a highly competitive environment. The institute has much to be proud of but it needs to make its achievement better known in Sudan and internationally. The Review echoes the repeated suggestions of the Technical Advisory Committee regarding the need for EpiLab staff to more extensively publish the results of their research and development work in the peer reviewed literature. Similarly, it is in EpiLab's long term development interests to make sure that the Sudanese health sector and the general community are aware of its work and in particular, that they associate the important service improvements being developed as products of EpiLab.

EpiLab's achievements are a credit to its leaders, its staff and its financial and technical supporters. It is entering a period of transition to greater independence and has a sound foundation on which to make needed changes. The Review Team wishes the institution every success and trusts that the observations and recommendations made in this report will positively contribute to its future development and success.

# 1. Introduction

The Epidemiological Laboratory (EpiLab) was established in Khartoum, Sudan in 2005 as an independent, non-government, non-profit organisation. Its goal is to carry out operational research in public health and to identify, characterise and prioritise challenges to health status and health services delivery and to devise and demonstrate feasible strategies to overcome obstacles and improve the quality and effectiveness of health care delivery.

The foundation of EpiLab and was based on expanding the rich database developed by the former director of the Sudan National Tuberculosis Programme (Dr A Elsony) as part of her doctoral thesis, and on the experience gained in implementing the programme of DOTS-all-over in Sudan in 2002. The hallmarks of EpiLab's work have been its methodical approach to problem identification; data gathering and analysis; identification of best practice methods; implementation planning; pilot testing that includes staff training, facility equipping, and drugs and materials supply; on-going supervision and support; evaluation of progress; adjustment of methods; and outcome evaluation.

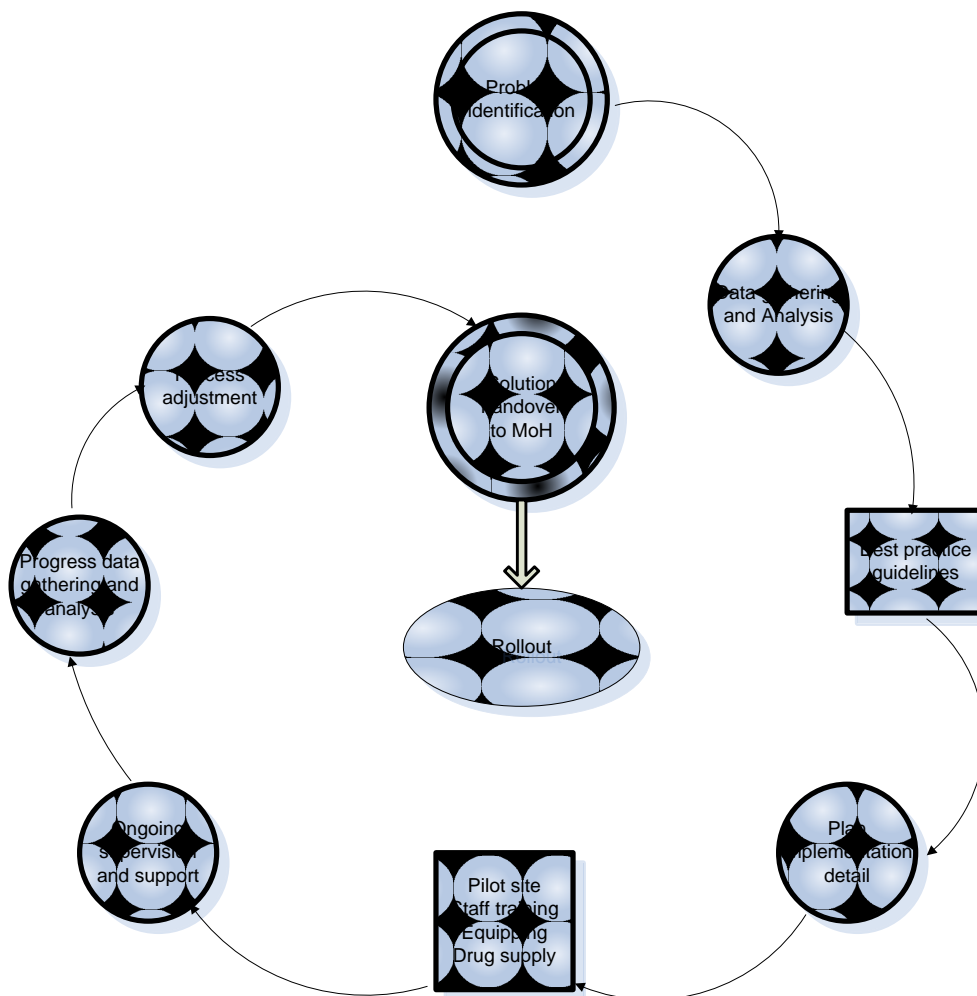


Figure 1: Schematic view of EpiLab public health improvement processes

On establishment, EpiLab set an ambitious programme of action in its 2004-2009 medium-term development plan. This review aims to assess progress against those goals and to identify the strengths and weaknesses in EpiLab as it prepares to become self-sustaining as a centre of excellence in public health research and policy guidance.

EpiLab has developed relationships with public health service providers in Khartoum and Gezira states (in 14 pilot sites) to undertake its work. While the organisation is independent of the Ministry of Health it works in close association with the state Ministries' services in the designated to pilot sites. Funding for EpiLab activities is drawn from a variety of sources. The Norwegian Association of Heart and Lung Patients (LHL) has been a major continuous financial and technical supporter since the inception of EpiLab. The International Union against Tuberculosis and Lung Disease (The Union) has also provided continuous support and has designated EpiLab as a collaborating centre. Other Financial Resources have been drawn from a variety of project sources including the Global Fund against AIDS, Malaria and Tuberculosis (Global Fund), the World Bank, and other international donors and private donors and supporters in Sudan.

EpiLab operates from independent premises in a suburb of Khartoum. It has a mixture of fulltime, part time and consulting staff, organised into specialist sections, a management unit and into project groups. Section and project leadership is provided on a voluntary basis by highly qualified and experienced Sudanese clinicians and academics.

These characteristics make EpiLab unusual and its establishment was a bold experiment in health services advancement carried out in a complex and volatile socio-economic and political environment. Through its international and national linkages and support, and based on its good quality, methodical and persistent approach EpiLab is actively contributing to efforts for the improvement of public health services delivery in Sudan. Its structure creates both opportunities and constraints. The past five years have witnessed factors beyond its control having significant influence on the pace and degree to which EpiLab has been able to influence services delivery and the health status of the people of Sudan.



## 2. EpiLab's mission, strategy and priorities in the context of LHL's and Sudan's priorities and strategy

LHL has provided long-term support to lung health services in Sudan and in other nations. In Sudan, LHL also supports the National Tuberculosis Programme (SNTP) and the Sudan Tuberculosis Patients Association (STPA) with funds derived from its own resources and with the support of NORAD (Norwegian Agency for Development Cooperation). This three partner programme aims to maintain the reliable delivery of essential public health services to the population (SNTP); that are responsive to the needs and wishes of those affected by tuberculosis (STPA); and able to ensure good quality and adaptation to emerging and changing needs (EpiLab).

### a) *The relevance of EpiLab's policies and strategies to beneficiaries*

EpiLab has acquired the responsibility for maintenance of the National Tuberculosis Programme database. EpiLab holds a copy of the data, it provides technical support to SNTP for maintenance of the database and is able to undertake analyses to determine the impact of the programme with respect and gender, location of services and indicators of poverty. Through its introduction of the geographic mapping of data via its geographical information system (GIS), EpiLab has introduced a 21<sup>st</sup> century tool to geographically illustrate the disease prevalence, risk factors and service delivery patterns. Through these it can demonstrate factors such as blockages in access to services by gender and poverty status.

In its developmental programmes, EpiLab is collecting gender and poverty related data and through these is able to understand the impact of gender and poverty on health risk behaviours (e.g. tobacco use) and on access to treatment. Data analysis and reporting capacity is not yet fully developed in EpiLab. Current changes to the collection, storage and maintenance of databases will substantially improve the potential for EpiLab to greatly strengthen its work in these fields. The data management improvement programme is being proposed by a consultant who is the Dean of Mathematics at the University of Khartoum and she is an experienced biostatistician who proposes a continuing link with EpiLab. These additions to the considerable in-house skills base in data management and analysis should enhance EpiLab's capacity and influence in the fields of health service knowledge and evidence based policy advice.

**Recommendation 2.a.1:** EpiLab should consider making greater use of the NTP database to develop attractive, easily comprehensible routine reports that give emphasis to the distribution and utilisation of TB services, particularly illustrating the impact of gender and poverty on services utilisation in regions within states.

EpiLab has done pioneering work in modernising the diagnosis and management of asthma in pilot sites has ensured provision of affordable and effective medications

that can be accessed by all the community. Its subsequent work to have these medications evaluated for inclusion in revolving fund programmes should provide the necessary evidence to maintain and extend these vastly safer and more effective services throughout the nation.

Current cultural attitudes create obstacles that discourage parents from permitting their daughters with asthma to use effective medication inhalers. This situation calls for targeted health promotion activities in order to ensure that the risks to the health and welfare of girls with asthma are not compromised by these beliefs. That presents an opportunity for EpiLab.

Meetings with STPA illustrated the effectiveness of aspects of that organisation's health promotional programmes with the community. There are significant opportunities for joint activities between EpiLab and STPA in basic research and the gathering of information from the community. In addition, there may be much to be gained in joint efforts for soundly based health promotional messages devised by EpiLab being delivered by STPA workers.

**Recommendation 2.a.2:** EpiLab management should pursue opportunities for mutually supportive activities between STPA and EpiLab particularly in the area of community research and health promotion.

Opportunities could be offered for sections within EpiLab to regularly meet with representatives of STPA (including fieldworkers) to identify weaknesses in services delivery, discuss common issues and devise joint activities, including the evaluation of the effectiveness and efficiency of proposed activities.

## ***b) The contribution of EpiLab to meeting Sudan's public health needs***

The relationship between EpiLab and the Federal Ministry of health is complex. After five years of development it can be seen to be now entering a mature and effective phase. The initial expectation of a strong relationship between SNTP and EpiLab did not quickly come to fruition. During the initial years of EpiLab's existence, the SNTP took an unexpected path which appears to have led to less emphasis being given to case detection; maintaining the DOTS-all-over programme; and supporting an evidence based approach to policy development and resource allocation. The previously high rates of TB detection and conversion significantly declined during this period.

Subsequently, formal relationships have been established between SNTP and EpiLab. Clearly there is now a high level of mutual respect between the organisations. Beyond the data management arrangements discussed above, however there is no contractual relationship between the organisations that empower EpiLab to provide policy or practice advice. Nonetheless, EpiLab is a welcome member of the public health community in Sudan and is entitled to compete with academic institutions and other organisations for contracts for research and development activities funded by government or other bodies such as the Global Fund.

EpiLab's agreements with public health providers in Gezira State and Khartoum State are strong and are sanctioned by the relevant state ministries of health. In the designated pilot institutions, EpiLab provides high levels of technical support, gathers detailed data, trains and supervises staff, and provides limited diagnostic equipment and specific drug supplies. The staff in the departments of these institutions that are linked to EpiLab have a good understanding of EpiLab's requirements and a strong appreciation of the effectiveness of EpiLab's work.

EpiLab has maintained a long-term relationship with these units in order to ensure that service improvements are sustained and that improved clinical and diagnostic procedures will be maintained beyond the handover period.

Even so, these developments and relationships are vulnerable because of rapid staff turnover throughout the health services and this requires regular training of the newly recruited staff on the introduced procedures. In addition, institutional management priorities may not reflect EpiLab's service development priorities. During the team's visit it was learned that one pilot TB management site in which HIV/ TB linkages have been well developed, the TB outpatients facility may be closed because of an inability to maintain the sputum smear microscopy service. EpiLab has not been formally consulted on this matter.

It was obvious to the team that the EpiLab monitoring and regular visits were appreciated by the staff at the various institutions. However, due to the high personnel turnover and often hectic situations surrounding patients, doctors, nurses and EpiLab staff their visits may have gone relatively unnoticed by influential figures such as hospital managers.

**Recommendation 2.b.1:** EpiLab should introduce branding or other marketing techniques to advance awareness of the EpiLab impact within the individual health care institutions, and among hospital managements, patients and the general public.

EpiLab has commenced programmes in all but one of the public health areas it initially set as targets for its support to the Federal Ministry of Health. The exception is malaria. To date, EpiLab has focused its attention on respiratory conditions, tobacco use and the detection of HIV. Progress in meeting targets in the areas covered has been reasonable, though the deliverables timetable proposed in the medium term development plan has proven to be very optimistic.

New avenues for EpiLab's development may be opened by the recently agreed memorandum of understanding with the Federal Ministry of Health's Division of Non-Communicable Diseases. EpiLab may now have the opportunity to bring its methodical approach to problem analysis and evidence based solution interventions into the increasingly important fields of diabetes, hypertension and other chronic diseases.

**c) *EpiLab's effectiveness in planning, priority setting and undertaking strategies.***

EpiLab has made substantial achievements in its five years of existence. It is now well established and, has maintained its relative independence as a non-government organisation. It has apparently solid links with the 14 health services that provide pilot sites for its interventions in Khartoum and Gezira states. It has a capable and committed staff. These developments have been achieved with strong international support and reasonable levels of acceptance within the national health services. The choice made by the founders of EpiLab to develop the institute outside the structures of government afforded the organisation significant freedom to set its own agenda while at the same time denying it much of the formal authority to influence policy that is available to those working within government organisations.

Similarly, EpiLab sits independently from academic institutions. Through the links of its leaders with senior academics, it has been able to build good links with leading clinical and public health academics, without the constraints of having to work exclusively within one institution. More recently, EpiLab has been able to attract a small number of senior academics to its consultant ranks who are seeking access to its resources and the opportunities for development that they bring.

How has this occurred? The core elements of this development are outlined in the medium term strategy. The institute has benefited from strong and effective leadership. Clear-sighted determination has enabled EpiLab to overcome many significant obstacles. Pragmatism and opportunism are necessary partners to routine management practices, particularly in complex and resource scarce environments. The entrepreneurial flair of the Director together with her commitment to good quality scientific research and her experience in managing the successful introduction of complex diagnosis and treatment service "DOTS-all-over" throughout Sudan has provided the style of leadership needed to establish the institute and bring it to its present level of achievement.

Over recent years EpiLab has begun a process of strengthening its management structures. As it has grown, the need for efficient administration has also grown. Complex arrangements for staffing, funding and budget management need good management and this is receiving increasing attention.

Similarly, EpiLab is facing pressure to further formalise its planning and resources allocation processes. These pressures are from both outside and inside the institute. The Technical Advisory Committee (TAC) has promoted more formal approaches to planning. The Director has encouraged individual sections to chart their destinies in their own strategic plans. This "bottom up" approach has generated interesting, if somewhat uncoordinated responses. In general, section strategic plans tend to be the aggregation of the ambitions of individual units within the section. As yet, there is no written overarching EpiLab strategic plan for the next five years within which the section plans can be viewed.

As EpiLab moves towards greater financial independence, feasible strategic plans become important tools for organisational focus, coordination, and marketing to potential sponsors, funders and the community. A practical plan, routinely updated

provides a good basis for accountability at the operational and managerial levels. With growth and greater diversity of activities, EpiLab could benefit from a more disciplined approach to planning. The early iterations of planning by the sections are impressive, but they would benefit from being recast within a clearly defined overall EpiLab strategy and by becoming more specific in terms of numbers of sites and volumes of activities to be achieved in reaching overall goals. Similarly, future versions of strategic plans should identify the human, financial and other resources that will be required to successfully implement the plan.

**Recommendation 2.c.1** EpiLab should review its current collection of section strategic plans within the context of a clearly articulated overall EpiLab strategic plan covering the next three to five years.

This might be most efficiently achieved in a workshop that involves the director and senior staff with section leaders and coordinators led by an experienced facilitator. The purpose would be for the participants to formulate and agree the core institutional strategy and then develop appropriate section strategies that effectively contribute to meeting the overall goals and strategies of EpiLab as a whole.

**Recommendation 2.c.2** The strategic plans of sections should clearly define targets and resource requirements. Reports on progress should identify both achievements and obstacles to progress to strengthen management and processes of accountability.

### 3. EpiLab's Institutional Capability: Organisation, management and governance.

EpiLab is entering a stage of transition. It can reasonably anticipate the continuing availability of technical and funding support from LHL and the Union for the next three years. Nonetheless, it is expected to quickly take increasing responsibility for raising the funds needed to sustain its infrastructure, its ongoing management and its overall organisational requirements.

This need casts a spotlight on EpiLab's readiness for greater independence. Important factors to be considered in this regard are organisational structure and management control, systems of accountability for technical quality and financial probity, the ethical framework and oversight of research activities, and general management issues including human resources, finance, procurement and public relations.

The review has paid particular attention to these matters with the intention of supporting EpiLab's transition to greater financial self-reliance and its strengthening of management capacity, methods of governance and accountability. Considerable time was devoted to discussions with senior management about issues of governance and accountability in the future. Examples were provided of governance arrangements in a variety of successful medical research organisations internationally. The roles of boards of management and of technical advisory bodies were considered in detail with the aim of assisting analysis of the alternatives available. Sudan has unique laws and regulations relating to the obligations of non-government, non-profit organisations. It is within that framework that EpiLab must craft its future governance arrangements.

EpiLab has been a bold, successful experiment. It has quickly become established and has carved out a niche as a pathfinder in services improvement in a number of areas of public health. This is to the credit of those that lead and work in the organisation. Past success provides no guarantee of future performance. The institution faces considerable changes ahead. It needs to continue to adapt and to considerably strengthen its management of resources and build robust accountability mechanisms that will help it to attract resources and to buttress it against the stresses arising from financial restrictions and potential attacks on its reputation.

#### **a) Managerial development over the past five years**

The medium term development plan to 2009 proposed: *EpiLab requests support for project management and coordination to ensure efficient, quality, timely and accountable work in carrying out the projects, and, in addition, to model appropriate methods for developing accountability in public health services. ... Moreover, lessons learned in management and coordination will be documented and described to assist national programmes and other interested parties to learn how to develop skills and competence in this area<sup>1</sup>.*

<sup>1</sup> Medium Term Development Plan 2004-2009 Work Package 6 (see Annex 3 for full details)

Five areas of work were outlined: engaging support staff; a human resources plan; information technology for data management, administration and monitoring; appropriate equipment; and an administration manual covering management, technical support and coordination. Acceptable progress has been made in the first four of these areas. EpiLab has competent support staff; well housed and equipped with appropriate technology; carrying out their responsibilities of recruiting and paying staff, managing procurement and finances, and reporting on organisational progress. Administrative staff follows appropriate routines but these have not been amalgamated into a manual appropriate for distribution as a model for other service providers.

While the management processes appear to be competent, they have not reached the exemplary standards anticipated by the 2004 plan. Experience in a number of fields of activity shows that the medium term strategy has dictated the trajectory of EpiLab, but the lofty goals initially set have generally not been attained. This situation should neither discourage those working in EpiLab nor significantly concern supporters and donors. The issue is one of timing rather than misadventure.

EpiLab has made sound progress in the development of its management processes through its programme of work and technical achievements, its management of finances, its ability to attract competent staff, and its openness to external scrutiny. It is well placed to take major strides in strengthening this field of activity over the next three years.

### ***b) Response to recent TAC advice on management***

EpiLab's international Technical Advisory Committee (TAC) has had a continuing relationship with the institute from its inception. It visits approximately annually and undertakes a close examination of activities and outcomes. The members of the TAC have a deep understanding of the organisation and their reports provide both encouragement and useful guidance to EpiLab management and staff. The TAC last visited EpiLab in November 2008 and recommended a number of administrative actions to strengthen the institute. The majority of these centred on financial and budget planning, and on identifying future sources of funds. These activities were recommended to be carried out at the level of the sections, management support, senior management and the fund raising committee of the Board. Other recommendations included reconsideration of the organisational chart, strengthening data management procedures, routine quarterly reporting of activities, and greater emphasis on publication of research findings in the scientific literature.

All of these recommendations have received attention though some have progressed further than others. The team's analysis of many of these matters is covered in other areas in this report<sup>2</sup>.

In brief our observations on the outcome of TAC recommendations are as follows:

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<sup>2</sup> Organisational and management strengthening issues: - see Report Chapter 3c; Finance and budget management: - see Report Chapter 3d; Database management:- see Report Chapter 2a; Scientific publications:- see Report Chapter 5a.

*TAC Recommendation 1. The director spell out the role of the Technical Advisory Committee, develop terms of reference and include it on the organizational chart.*

This has been done, though the Review Team have given a number of suggestions for reviewing the proposed structure and to clarify the intended relationships.

*TAC Recommendation 2. The administration staff undertake forward planning for activities, budget and spending plan, including a needs assessment and gap analysis to construct an overall budget for the EpiLab as a whole as well as for each of its projects.*

Progress is being made in this area with individual section's budgets being created. When completed, this should assist in improved management control of spending at the section and central management level.

*TAC Recommendation 3. The director and senior management prepare a revenue generation plan with a clear process for review of the progress of the fund-raising committee of the Board.*

Action on this is being led by the Deputy Director who was unavailable during the Review Team's visit. It is clear that the Director has a high level of confidence in her Deputy's skills and capacity in this regard and substantial funds have been pledged by local donors.

*TAC Recommendation 4. All sections, in consultation with the Director, finalize funding proposals for financing their visions and strategic and action plans with a focus on opportunities represented by the Global Fund and that the sections, in consultation with the Director, submit proposals for funding.*

Funding proposals have been submitted to the Global Fund and substantial funding has been offered to EpiLab.

*TAC Recommendation 5. The Director develops a plan to strengthen management capacity to prepare for large-scale projects and donor contributions.*

The Director has given consideration to this matter. The Review Team offered suggestions with the aim of helping clarify potential paths into a more independent future. EpiLab would benefit from support and advice from an experienced local management consultant to assist the institute to make the transition from its current style of management that reflects its roots in the public sector and secure funding to a more business like, risk aware and deterministic management style. At the same time EpiLab needs to ensure that its processes of governance and accountability are recast to support it in this transition.

*TAC Recommendation 6. The administrative assistant circulates a form for quarterly reporting of scientific activities including technical assistance, teaching and publications.*



Improved reporting and greater communication with potential supporters remain high priorities.

*TAC Recommendation 7. The coordinator of the data management unit strengthen the data management procedures including solid security measures and quality assurance of databases, calling on external expertise to advise on the way forward.*

Good quality, sensible recommendations have resulted from the work of a local Consultant. These will require modest funding and a short period of technical assistance to implement. The recommended package should secure data integrity and greatly expand the opportunities for high quality research, reporting and publishing.

*TAC Recommendation 8. EpiLab team members must conscientiously follow through their research projects to the point where the results are published in the scientific literature.*

The research results are impressive but the publications remain relatively few. The Review Team gave high priority to pressing the need for a more active programme of publication. It is probable that the staff members would benefit from specific training in scientific report preparation and publication.

### **c) Organisational structure and management for sustainability and excellence**

The organisational structure of EpiLab reflects its early stage of development, its evolution from a public sector history, its period of secure base funding, and progressive expansion in response to introducing new projects. The highest levels of management have a clear concept of the past, current and future direction and prospects for the institute. This is accompanied by a strong commitment to decentralisation of authority and relative freedom for the sections within the small organisation to substantially chart their own future.

This unusual mix of factors has permitted the quite remarkable development of EpiLab. Consequently, the analysis below and the recommendations that follow should be considered with some caution. The review spent only a short time visiting EpiLab. While the members brought depth of technical and managerial experience, neither would claim that their understanding of the functioning and distribution of authority within the institute is complete. While we propose strategies to ‘strengthen’ the management structure, we appreciate that development to date has been the product of outstanding leadership, astute decision making and drive. Our reasoning is based on assumptions about the future direction of development; the necessity for continuing flexibility and adaptability; expectations of growing demands for accountability, and the need to expand the sources and volume of funding.

The organogram for EpiLab is unduly complex and while it illustrates all parts of the institute, it casts very little light on the chain of command and systems of accountability. Clarifying these matters is important and becomes more so as the range of activities undertaken by EpiLab grows. During the visit, a simpler depiction of the organisational structure was discussed.

Figure 2 outlines the suggestions made.

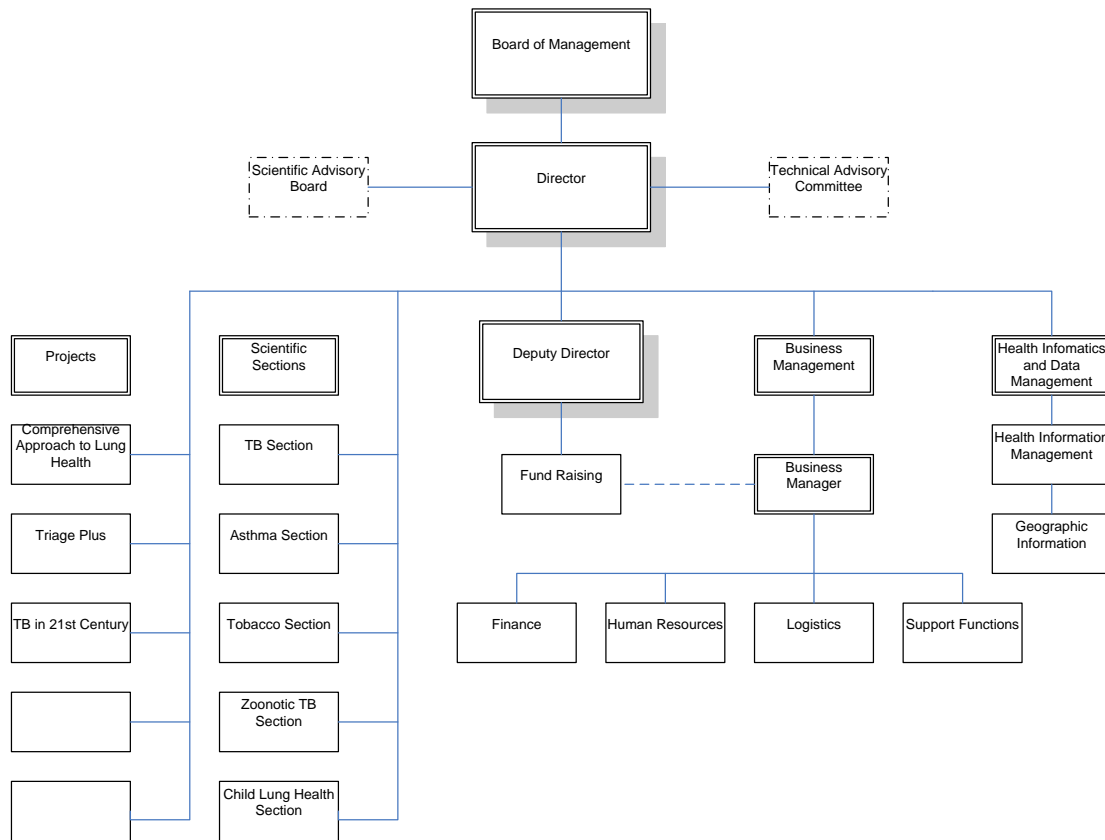


Figure 2 Suggested Organogram

This structure emphasises the range of activities rather than identifying every position in the institute. It could be complimented by a series of organisational charts for individual functions/sections.

**Governance** One significant addition to the chart is the inclusion of a Board of Management. The senior management have been considering options on how a Board could be constituted and what its powers should be. The Director is cognisant of EpiLab’s accountability to the Humanitarian Assistance Commission of government as an NGO. This demands stringent reporting requirements. Similarly, EpiLab prepares accountability reports to LHL as a major donor, and to other benefactors. The clinical investigative and training work in health centres and hospitals, and the formulation of health policy advice places EpiLab with responsibilities to the Federal and relevant state ministries of health. For these reasons, another layer of accountability to a Board of Management has not been immediately embraced.

The recent global financial crisis has cast a spotlight on accountability issues and has raised international community interest in the subject. EpiLab is a practical research institute, committed to improving health status and public health services. It aims to spearhead change. In so doing it actively works to alter the status quo. This introduces new ways of diagnosing and providing clinical services. That process, no matter how well intentioned or how well researched, introduces rewards and risks. In the health

sector the risk to individual recipients may be dramatic, ranging from impairment to death. As an organisation standing outside government, that risk must be carried by the institute and its management. The standard modern way for that to be managed is through a Board that has the authority to call the Director to account, and the responsibility to ensure that the overall plans, policies and resources of the organisation are appropriate to the situation in which it works.

As EpiLab moves to greater financial independence, a board could serve its interests very well. Internationally, research institutes aim to attract high profile, influential figures to their boards. They seek people of high ethical standard with strong reputations in the community. They want to have access to their financial, managerial and technical expertise to assist the institute in formulating coherent strategies for their research, financial strength and building and maintaining their status in the community. A good board of eight to ten people will provide strong support to a good director while ensuring that the institute properly accounts for its plans, activities, achievements and failures. A strong board will protect and defend the institute's reputation against unfounded attacks. It will support and potentially lead fund raising activities that will gather the resources needed to maintain the institute's effectiveness.

The review provided some general information to EpiLab on the role and function of boards of NGOs for consideration. It is suggested that the current Advisory Board be re-designated as the Scientific Advisory Board. It could be advisory to both the Board of Management and the Director. It may also be appropriate to include the Chairman of the Scientific Advisory Board as a member of the Board of Management to ensure an open flow of information between the bodies.

**Recommendation 3.c.1** EpiLab should reconsider the usefulness of their current organogram and restructure it as a document capable of explaining to staff, funding authorities and the community the range of activities undertaken and the overall way in which they are managed and controlled.

**Recommendation 3.c.2** EpiLab senior management should consider introducing a board of management that represents the interests of the community and will support sound accountability mechanisms, facilitate fund raising, and will promote and appropriately defend the reputation of EpiLab in the community. The membership of the board should reflect EpiLab's interests while conforming to the statutory requirements of government.

**Organisation of resources** The internal structure of EpiLab into sections and units within sections reflects the division of labour for the current workload. It may contribute to efficiency, but on the other hand may be limiting the scope of thinking and diversity of strategies being evolved. A particular concern is organisation of resources for health education and health promotion in EpiLab's work. Asthma, Tobacco and Zoonotic TB sections have health education units. The Triage-Plus project also devotes resources to health education activities. Superficial observation suggests that this divided approach is not conducive to EpiLab being able to

spearhead the introduction of well developed health promotion techniques into Sudanese public health practice.

The Review Team provided the Tobacco section with links to leading edge international health promotion practices within that field. Many of these techniques are now being incorporated into general public health practice. EpiLab should consider what role it could play in advancing health promotion and health education within Sudan and the region given the importance of the contribution that community knowledge and attitudes make to public health status. This might warrant reorganisation of the current structure to create a Health Promotion and Health Education section that initiates activities as well as providing support and advice to all other sections and projects.

**Recommendation 3.c.3** EpiLab should decide the future role it intends to play in advancing health promotion and health education in Sudan and the region. In so doing, it should review the organisation of currently allocated resources in this field to ensure that they are able to be used to their best advantage.

**d) *Financial resources, their management, donor sources and sustainability***

EpiLab draws on a variety of sources for income. These include LHL for ongoing maintenance funding and specific project support, and project based support from the World Bank and the Global Fund. In addition, the Union, WHO, LHL and other international organisations provide modest support for training. In recent years EpiLab has actively pursued funding donations from Sudanese donors. The amount of funds received through this channel is progressively increasing and its sustainability is viewed confidently by the institute's leadership. Processes for budget management are obviously improving, though are not yet at a stage that they need to reach when the institute is independent.

The Review Team focused on fund raising and budget management in discussions with EpiLab's senior management.

***Fund raising:*** EpiLab has the complex task of fund raising that most international medical and public health research institutes face. Established institutes can offer valuable lessons in how to approach this task. EpiLab has benefited from a long period of seed funding from LHL. That has been essential to its establishment. That will and should end. It is time for EpiLab to stand on its own feet and it has until 2012 to develop ways to sustain its future maintenance funding.

Among the obvious sources of funding being pursued by EpiLab are research grants. These are usually won in intense competition and based on excellent scientific proposals together with sound costing schedules. Such grants and contracts are the lifeblood of research institutes. EpiLab needs to maintain and further strengthen its capacity to bid for and win such research contracts. At this stage, EpiLab does not appear to have firm and justifiable policies on the administrative on-costs that should be included in its research tenders. Management should gather reliable information on

the policies of granting organisations and the practices of other research bodies on this issue to assist it to formulate such policies. While LHL funding has previously shielded the institute from having to consider this matter in depth, it is now time to arrive at informed decisions.

**Recommendation 3.d.1** EpiLab management should develop evidence based policies on standard administrative on-costs to be earned from successful research grants and contracts.

Local fundraising is currently managed by the Deputy Director and is reported to be progressing well. In the discussion and recommendations above regarding governance, the potential role of a board of directors is canvassed with regard to fund raising. As EpiLab grows and prospers, it could give consideration to the development of an “EpiLab Foundation” that provides the public face of the institute to the community and leads the activities for attracting large and small donations to its work. An example of a highly successful international research foundation was provided to EpiLab management during the review. Untied donations are necessary for EpiLab to continue to develop and to initiate activities that are not sufficiently refined to win external funding contracts.

**Resources management** The prudent management of resources is the other half of ensuring EpiLab’s sustainability. Financial management resources have been progressively strengthened over the period of the institute’s existence but they appear to be not given a status equivalent to the scientific sections. That should be reconsidered. The Review Team discussed the concept of creating an executive position of Business Manager within EpiLab. That position would be accountable to the Director, and through her to the board for the overall management of finances and administrative services in the institute. The position would be granted substantial authority over the management of resources, and the cost centres would be accountable through the Business Manager for budgetary performance.

The head of management and finance is currently developing a system of allocating budgets to sections and projects and recording expenditures under these headings. That is an important first step in a process to much higher levels of budget accountability. While EpiLab remains a relatively small organisation, centralisation of budgetary control is sensible. But such a policy sits at odds with the Director’s preparedness to encourage substantial independence within the sections to chart their own destiny as indicated by the process that was established for EpiLab’s strategic planning. Similarly, there is an intention to encourage sections to seek out sources of funding. As these processes advance, the need grows for sections to have very well managed revenue and expenditure budgets and for their budget performance to be well supervised.

**Recommendation 3.d.2** EpiLab should consider elevating the responsibility for overall resources management to the executive level through the introduction of a position of Business Manager with direct responsibility for revenue and expenditure budget formulation and supervision.

**Implementing change:** EpiLab has illustrated its high regard for expertise in the way in which it manages its scientific sections. That approach would benefit its

management responsibilities, bringing expert advice and experience to bear on the development of ideas and strategies aimed at improving management functions. There are many ways in which this could be achieved.

One would be to bring in a well qualified local consultant to facilitate management's planning and implementation of changes such as those recommended by this review to governance structures, strategic planning and financial management. Another approach also used by EpiLab in its scientific sections is to grow local skills by offering opportunities for personal academic advancement to relevant management staff members. A third approach could be to arrange for senior management staff to have a period of experience working in a major private sector organisation in Sudan. The purpose is for them to observe and to participate in the information gathering and decision making processes that successful organisations in that sector use. Another alternative is to arrange for the secondment of an experienced executive from the private sector to work for a period of six to twelve months in EpiLab, guiding the introduction of modern business management principles that would be expected by a corporate board.

There are undoubtedly more strategies that EpiLab could adopt to strengthen its management ethos and systems without facing excessive costs or creating unacceptable risk. The need for management strengthening is real and should become an essential part of the strategy for successful transition to financial independence over the next three years.

**Recommendation 3.d.3** EpiLab management should review alternatives and adopt appropriate measures to strengthen its management structure and processes as an essential part of its transition to financial independence over the next three years.

**e) *Role of national consultants as leaders of EpiLab scientific activities***

Currently, several high profile scientific and clinical leaders offer service in a voluntary capacity to oversight and support the sections. This system has served the institute well. They accept the nominal role of Head of Section and are called upon from time to time to give leadership and advice and to help to promote the EpiLab findings and and service improvement recommendations to the Ministry of Health and the medical profession. The majority of these people have had past experience of working closely with the Director and have responded to her call for their participation. Their status in the health sector and the Sudanese community has lent weight to the outcome of the institute's technical activities.

Questions arise as to the security of this arrangement, its long term necessity and its sustainability. As EpiLab progresses and its activities become more complex, its activities may begin to need more readily available scientific leadership than can be provided by consultants providing advice within otherwise extremely busy schedules. Similarly, as the reputation of EpiLab grows, it will be less reliant on the status of its current consultants to effectively carry the important messages derived from its research and policy development work.

While those days of greater strength and independence are approaching, they are not here yet. In the meantime, the current system of utilising consultants appears to be serving EpiLab's interests. Nonetheless, it is important for senior management to regularly monitor the inputs being made by these consultants to ensure that on balance, their contribution brings real benefit to the institute. When problems arise with their availability or the continuing relevance of individual consultants skills, appropriate steps should be taken to augment or replace these inputs.

## 4 EpiLab's technical advisory role and partnerships

EpiLab functions as competence centre for public health in Sudan through its achievements in implementing a country-wide National Tuberculosis Programme, graduate, post graduate and health care personnel training, and identifying various weaknesses in the Sudanese health care system, tailoring and testing methodologies to overcome these and implement improved health care services. EpiLab is a partner in numerous international collaborative scientific research projects in tuberculosis, other lung diseases and HIV/AIDS with funding from reputed granting agencies.

### a) *EpiLab as an advisor to the Sudan's National Tuberculosis Programme.*

EpiLab holds a central position as an advisor to the Sudan National Tuberculosis Programme (NTP). The NTP general manager Dr. Hashim Sulaiman El Wagie informed the Review Team that they have regular valuable contact. He considers EpiLab a close partner referring to a relationship he appreciates and hopes will continue. Their close bond is exemplified through their mutual partnership in the WHO Stop TB partnership (<http://www.stoptb.org/partners/>) and close collaboration with a third institution (Sudan's National HIV/AIDS Control Programme (SNAP)). Focal persons in the trio are assigned to the collaboration in which EpiLab is considered a valuable provider of scientific advice.

### b) *EpiLab as an advisor to the Federal Ministry of Health.*

EpiLab is largely a research unit that focuses on researching public health issues in Sudan, and provides technical assistance to the Federal Ministry of Health and other organisations in Sudan. The Federal Ministry of Health clearly appreciates advice, inputs and data presented from the EpiLab. Some of this work is formalised in memoranda of understanding determined on a case-by-case basis. One such case is exemplified by the recent memorandum of understanding (MOU) between EpiLab and the Federal Ministry of Health, Division of Non Communicable Diseases. Under this arrangement EpiLab is to be requested to expand their work in order to address health care issues related to diabetes. The role that EpiLab plays as a principal research unit and technical advisor for the NTP reflects the quality of its links with Ministry of Health though that would benefit from formalisation in a MOU or other instrument.

**Recommendation 4.b.1** The EpiLab should seek a formal written agreement between the Ministry of Health and EpiLab. This should consist of an overarching agreement between the parties together with specific contracts or memoranda of understanding for particular activities between relevant programmes, divisions or departments and EpiLab. The overarching agreement could describe the research and advisory role of EpiLab to the Ministry. When EpiLab accepts assignments from the Ministry of Health it is strongly recommended that they be formally



documented and that they stipulate the expected future advisory role EpiLab is to play.

Most of the advisory roles that the EpiLab holds in the Sudan (and abroad) were established by EpiLab Director Professor Asma El Sony. Her past position as the President of the International Union Against Tuberculosis and Lung Disease and her extensive international contacts have confirmed her reputation in a wide and valuable international network. The Review Team observed that the advisory role of the EpiLab now clearly extends beyond Professor El Sony and includes senior members of EpiLab's staff. This illustrates the strong and growing reputation of EpiLab in the Sudan as a valued national institution.

### **c) *EpiLab as a technical advisor for national stakeholders in Sudan***

EpiLab has highly qualified advisory board members, heads of sections and consultants within various fields such as paediatrics, lung health, virology, tuberculosis, software engineering, biostatistics etc. These and others of the EpiLab staff hold positions or memberships within various specialist associations in Sudan. Through their many academic and administrative posts they promote EpiLab and its technical advice in these forums.

An example includes the promotion of the standard case management of pneumonia in children under five, published by the EpiLab. These guidelines have been presented by Professor Zein ElAbdeen Abdul Rahim Karrar, the head of the Child Lung Health section of EpiLab, to the National Advisory Committee on the Paediatric and Child Health Specialty. The guidelines are now adopted by the health care services in numerous hospitals. Professor Omer Abdel Aziz Musa, the Vice President of the National Ribat University and head of the EpiLab Asthma section is actively involved in promoting the improvements in the treatment of asthma in Sudan that has been demonstrated by the EpiLab piloting work.

This arrangement is both powerful and important to EpiLab's status and impact. It is unusual for a nascent institution to be able to co-opt such distinguished clinical leaders. It is to the great credit of the Director and a mark of the success of EpiLab's work that these people link their name and reputation to these project findings. Clearly EpiLab must continue to work successfully to sustain such support, and in future years to be able to continue to attract this level of technical support and professional influence.

### **d) *EpiLab as an international technical advisor***

, EpiLab continues as a technical advisor in close collaboration with the IUATLD within the NTP, LHL, IUATLD and EpiLab partnership, EpiLab has the status of a collaborating center of IUATLD. EpiLab director Professor Asma El Sony is a member of the WHO Technical Advisory Committee and is a consultant to Eastern Mediterranean Regional Office of the WHO. In addition, EpiLab also collaborates with around 20 universities worldwide.

The Union has initiated an international network of organisations from Benin, China and Sudan on which EpiLab represents Sudan. EpiLab has a specific international advisory role for China in this network. With the support of the Union, activities of the network include the introduction of asthma drug administration by inhalers within the Revolving Drug Fund as a central issue of the collaboration.

**e) *EpiLab's role and participation in relationship between the three organisations that LHL supports in Sudan***

The three LHL supported organisations working on tuberculosis control in Sudan complement each other well. There is little evidence of duplication or redundant work being performed. The EpiLab, NTP, and STPA all serve essential roles and their continued existence is highly justified.

The relationship between EpiLab and the other two organisations has been described elsewhere in this report. There are potential benefits to be accrued to EpiLab from some strengthening of each of these. First, with SNTP, a more formally established relationship through the Federal MoH would strengthen EpiLab's capacity to bring its well researched evidence base to the attention of policy makers and with that enhance its beneficial influence on the health status of the community.

A stronger linkage between EpiLab and SNTP offers potential mutual advantage. For EpiLab, working closely with SNTP would bring opportunities for significantly improved incorporation of close to community experience in EpiLab's research. SNTP through a stronger linkage with EpiLab could gain greater access to reliable public health information for distribution via its effective health promotion channels.

**f) *EpiLab's relationship to other civil society entities in Sudan***

The EpiLab has strong collaborative partners within both human and veterinary medicine faculties in Sudan. EpiLab staff have been contributed to numerous workshops, courses and educational meetings for university and hospital staff. The relationship in which EpiLab heads of sections and consultants are drawn from positions in various hospitals in Khartoum ensures the strength of these relationships.

The EpiLab and its Director have earned highly respected positions in Sudan. Major corporations such as The Dal Group Inc. (<http://www.dalgroup.com/>) have become public supporters of EpiLab work. A programme of obtaining corporate and individual financial donations has been commenced under the responsibility of the Deputy Director. This appears to be making good progress in winning support for the institute.

## 5. EpiLab's implementation of research and other scientific activities

The activities of EpiLab include the initiation, evaluation, and promotion of health care procedures or programs to the Ministry of Health. TB routines have been adopted and others, such as management of asthma and case management in paediatric lung disease are pending, although the demonstrated effects are convincing and impressive. The results of the EpiLab work warrants both publication in international scientific journals and immediate implementation in the Sudanese health care system.

### a) *Assessment of the number and quality of publications produced by Epi-Lab*

EpiLab sections have prepared research protocols, activity reports and strategic plans. The results of their research are impressive and of interest internationally. The scientific merit and significance of the EpiLab work is suitable for full journal articles, as well as letters to editor or short reports in journals devoted to public health, epidemiology, or clinical studies. These results urgently need to be published to advance EpiLab's scientific qudos in future grant proposals, increase the world-wide impact of its work, and boost the CVs of the staff and the overall reputation of the institute.

**Recommendation 5.a.1:** EpiLab staff are strongly urged to publish their research findings in peer-reviewed scientific and medical journals. A high priority should be given to this activity in future as it is central to the development and maintenance of EpiLab's international reputation and to its future ability to attract funding.

EpiLab staff members have published in well reputed international journals that reach a wide audience within medical research and practice. There are numerous ways to measure the impact of research journals although all are debated and imperfect. During the last three years the following has been added to the EpiLab records.

Year	Abstracts	National journal	International journal	Review or chapter in a book	Thesis (MSc)
2007	2	2	1	1	1
2008	4	1	5		
2009	1		1	1	1

The list for 2009 is not complete. There is also a paper in progress for publication. This is co-authored by an EpiLab consultant (G. Kadoda) and submitted to Science's Education Forum, which is published in the last issue of Science magazine of every

month. The Review Team also found 2 additional publications co-authored by the EpiLab director.

Salieh M, Bashir S, Elmouse H K, Enarson D A, Mustafa N, Dahab Z SE, El Sony A. Participating in global tobacco research: the experience of a low-income country, Sudan. Paris, France: International Union Against Tuberculosis and Lung Disease, 2009. This is a guide that describes Sudan's experience in fighting tobacco use and participation in global tobacco research. Publication of the Guide was made possible with the support of the World Bank.

Enarson DA, Ait-Khaled N, Chiang C-Y, El Sony A, Enarson PM, Gninafon M, Kan X-H, Slama K. Lung health consequences of exposure to smoke from domestic use of solid fuels: A guide for low-income countries on what it is and what to do about it. Paris, France: International Union Against Tuberculosis and Lung Disease, 2009. To address the problem of indoor air pollution, The Union has joined with partners in low-income countries to find a way forward to address this problem. The monograph was therefore prepared with the support of the World Bank.

Abstracts are published summaries of presentations given at international conferences or meetings. The presentations generally include original research and may be presented orally or in poster form. Most of the abstracts in the table above were presented at the International Union against Tuberculosis and Lung Disease annual meeting (in Paris 2008). The national journals include the Sudan Medical Monitor and the Sudanese Journal of Public Health. The international publications include peer-reviewed journals such as Allergy, International Journal of Tuberculosis and Lung Disease, International Journal of COPD, Journal of Allergy and Clinical Immunology, and Paediatric Allergy and Immunology, all of good international ranking.

**b) *Researchers who have received support to complete their degrees (in-country and abroad)***

Numerous MSc theses have been produced in cooperation with the EpiLab since 2005. The University of Oslo in Norway and Malaysia University are central hosts as are different Universities in The Sudan. At least six of the current staff plan to enter an MSc programme abroad within the next two years (Hafiz Hussein, Amged Fareid, Ahmed Abdien, Marwan Ismail, Rashed Kamal, and Thoieba Ali).

The high aspirations of the staff and the quality of the MSc work and other research is valuable to EpiLab, but may also represent a risk in the sense of contributing to the turnover of personnel.

**Recommendation 5.b.1:** The results produced in many MSc theses could well have been published internationally to reach a wider audience. EpiLab staff should encourage current and future candidates to publish their work in relevant peer reviewed journals.

**c) *Quality and quantity of the deliverables of the scientific sections of the Epi-Lab.***

EpiLab has carried out pilot projects in the management of asthma, Child Lung Health, TB in animals, assisting smoking cessation among TB patients and for guidance and counselling tuberculosis patients living with HIV/AIDS. They have delivered numerous courses and have prepared posters and media campaigns. The quality of the work has been examined by scrutinising the methodology and data-handling. The existing routines for data collection, registration, and interpretation appear scientifically sound.

A large number of courses, programmes, supervision visits and seminars have been hosted by EpiLab. They have developed manuals, case management protocols and numerous other channels to reach health care workers, the general public, policy makers and politicians.

EpiLab has identified numerous weaknesses in Sudanese health care. They have suggested alternative case management, tested these, demonstrated their effectiveness and promoted them to the Ministry of Health. As yet only TB control measures have been adopted into the general health care system.

An example is EpiLab's unequivocal demonstration of the effectiveness of inhalers in the management of asthma. The documentation has been presented to the Ministry of Health and the 10-fold reduction in emergency room admissions is clearly beneficial from a financial as well as a patient care and public health point of view. Similar scenarios of achievement can be demonstrated by the other sections of EpiLab.

EpiLab includes economists among its consulting team. The Review Team identified the need for greater incorporation of analysis by health economists in EpiLab's reported findings. The findings of the asthma-study showed emergency room admission were reduced from 7700 to 220 following the routine introduction of combination bronchodilator-corticosteroid inhaler therapy. While the considerable positive impact on patients has been well documented, the cost benefit of this change in therapy has not been assessed. That economic analysis may provide the powerful motivation needed to change the standard asthma care procedures in Sudan.

**Recommendation 5.c.1:** EpiLab should routinely include a soundly based economic analysis of the impact of their findings in order to further strengthen the evidence for recommended changes to public health processes and/or clinical management of particular conditions.

**Recommendation 5.c.2** Immediate attention should be given to developing a reliable cost-benefit analysis of the outcomes of the asthma research to underpin the current efforts to have new procedures adopted as routine practice in Sudanese health services.

**d) *Resource allocation to each of the scientific sections.***

The current sections within EpiLab are the Tuberculosis section, Tuberculosis in animals section, Child Lung Health section (CLH), Asthma section, and Tobacco section. Each section has a coordinator and in addition CLH, Asthma, TB, and the pending HIV section each have an external Head of Section. In addition there are also major projects currently running (Geographic Information System, Triage Plus, and Comprehensive Approach to Improved Lung Health project) each coordinated by individuals who also work within sections. All coordinators, researchers, focal persons, and other personnel are young and are well qualified for the positions they hold. The young age of these staff members represents strength for EpiLab's future prospects, although personnel turnover is and may continue to be a risk.

The sections cooperate well and their individual efforts intertwine in ways that complement each other rather than overlap. The EpiLab team appears as one unit with specialised scientific sections of appropriate sizes and goals. They report that their working facilities (open offices) function well and that their experience is that this arrangement facilitates fruitful discussions, planning and management of results.

Beyond base level staffing, financial resources available to sections and projects are principally linked to specific project funding. In recent months, EpiLab has been moving to develop specific budgets for individual sections and to develop budget performance reporting for the sections. That process is discussed further in Chapter 3 of this report.

**e) *Integration of gender issues into research projects, proposals and other scientific activities in the Epi-Lab.***

None of the sections have projects or proposals that directly address gender issues. Although most of the sections collect such data on hospital admission, burden of disease or various risk factor behaviours. It is obvious that mining this valuable database of the EpiLab may produce data that can confirm the current impression that health seeking behaviour is skewed between the sexes. The GIS project that maps background epidemiology in the population (through direct household visits) holds enormous information on disease incidence among various groups by gender, socioeconomic status, education, household size and location, etc. This information should be shared both nationally and internationally through reports and publications.

Similarly, there are opportunities for routine data to be more specifically analysed for evidence of gender bias in health seeking and treatment patterns. Anecdotal evidence from the National TB Patients' Association suggests that there are significant barriers to women and girls seeking and receiving healthcare. The national TB database probably contains evidence to test these observations. With proposed improvements to the maintenance and accessing these data, this analysis could become a priority for EpiLab and could provide fertile ground for a staff member pursuing a higher degree.

**f) *Integration of TB and TB/HIV in research projects, proposals and other scientific activities in the Epi-Lab.***

TB and TB/HIV work is adequately addressed in correlation to the EpiLab strategy. EpiLab Director indicated that three NGOs in Khartoum have TB as their main field of interest while the equivalent number for HIV/AIDS is more than 20. However, on the ground, TB and HIV are closely intertwined and the EpiLab has addressed the problem through establishing Voluntary Counselling and Testing (VCT) units adjacent to pilot TB clinics, where patients are offered HIV testing and counselling on a voluntary basis. The testing is based on Bionor salivary strips for HIV detection. The test is a non-invasive “chair-side” assay which detects antibodies against HIV-1, HIV-1 group 0 and HIV-2 in less than a minute and without expensive hardware. The case detection rate appears to be increasing, although numbers are still unclear as the project is still at an early stage.

**Recommendation 5.f.1** EpiLab represents a considerable customer of the Bionor HIV detection kit. Even more, Sudan and other nations in its region offer an enormous potential market for this type of HIV testing product provided by competing producers. EpiLab should consider the potential price and service benefits that could be obtained by introducing competitive tendering for provision of these kits.

## 6. Summary of recommendations and some suggested next steps

The 16 recommendations below are numbered according to the sections in which they are made in the body of the report. The Chapter and section headings are repeated to align the recommendations. The page number of each recommendation in the body of the report is included in brackets.

### **Chapter 2. EpiLab's mission, strategy and priorities in the context of LHL's and Sudan's priorities and strategy**

#### *a) The relevance of EpiLab's policies and strategies to beneficiaries*

**Recommendation 2.a.1:** EpiLab should make greater use of the NTP database to develop attractive, easily comprehensible routine reports that give emphasis to the distribution and utilisation of TB services, particularly illustrating the impact of gender and poverty on services utilisation in regions within states. (Page 3)

**Recommendation 2.a.2:** EpiLab management should pursue opportunities for mutually supportive activities between STPA and EpiLab particularly in the area of community research and health promotion. (Page 4)

Opportunities could be offered for sections within EpiLab to regularly meet with representatives of STPA (including fieldworkers) to identify weaknesses in services delivery, discuss common issues and devise joint activities, including the evaluation of the effectiveness and efficiency of proposed activities.

#### *b) The contribution of EpiLab to meeting Sudan's public health needs*

**Recommendation 2.b.1:** EpiLab should introduce branding or other marketing techniques to advance awareness of the EpiLab impact within the individual health care institutions, and among hospital managements, patients and the general public. (Page 5)

#### *c) EpiLab's effectiveness in planning, priority setting and undertaking strategies.*

**Recommendation 2.c.1** EpiLab should review its current collection of section strategic plans within the context of a clearly articulated overall EpiLab strategic plan covering the next three to five years. (Page 7)

This might be most efficiently achieved in a workshop that involves the director and senior staff with section leaders and coordinators led by an experienced facilitator. The purpose would be for the participants to formulate and agree the core institutional strategy and then develop appropriate section strategies that effectively contribute to meeting the overall goals and strategies of EpiLab as a whole.



**Recommendation 2.c.2** The strategic plans of sections should clearly define targets and resource requirements. Reports on progress should identify both achievements and obstacles to progress to strengthen management and processes of accountability. (Page 7)

### **Chapter 3. EpiLab's Institutional Capability: Organisation, management and governance.**

#### *c) Organisational structure and management for sustainability and excellence*

**Recommendation 3.c.1** EpiLab should reconsider the usefulness of their current organogram and restructure it as a document capable of explaining to staff, funding authorities and the community the range of activities undertaken and the overall way in which they are managed and controlled. (Page 13)

**Recommendation 3.c.2** EpiLab senior management should consider introducing a board of management that represents the interests of the community and will support sound accountability mechanisms, facilitate fund raising, and will promote and appropriately defend the reputation of EpiLab in the community. The membership of the board should reflect EpiLab's interests while conforming to the statutory requirements of government. (Page 13)

**Recommendation 3.c.3** EpiLab should decide the future role it intends to play in advancing health promotion and health education in Sudan and the region. In so doing, it should review the organisation of currently allocated resources in this field to ensure that they are able to be used to their best advantage. (Page 14)

#### *d) Financial resources, their management, donor sources and sustainability*

**Recommendation 3.d.1** EpiLab management should develop evidence based policies on standard administrative on-costs to be earned from successful research grants and contracts. (Page 15)

**Recommendation 3.d.2** EpiLab should consider elevating the responsibility for overall resources management to the executive level through the introduction of a position of Business Manager with direct responsibility for revenue and expenditure budget formulation and supervision. (Page 15)

**Recommendation 3.d.3** EpiLab management should review alternatives and adopt appropriate measures to strengthen its management structure and processes as an essential part of its transition to financial independence over the next three years. (Page 16)

### **4 EpiLab's technical advisory role and partnerships**

#### *b) EpiLab as an advisor to the Federal Ministry of Health.*

**Recommendation 4.b.1** The EpiLab should seek a formal written agreement with the Ministry of Health. This should consist of an overarching agreement between the parties together with specific contracts or memoranda of understanding for

particular activities between relevant programmes, divisions or departments and EpiLab. The overarching agreement could describe the research and advisory role of EpiLab to the Ministry. When EpiLab accepts assignments from the Ministry of Health it is strongly recommended they be formally documented and that they stipulate the expected future advisory role EpiLab is to play. (Page 18)

## **5. EpiLab's implementation of research and other scientific activities**

### ***a) Assessment of the number and quality of publications produced by Epi-Lab***

**Recommendation 5.a.1:** EpiLab staff members are strongly urged to publish their research findings in peer-reviewed scientific and medical journals. A high priority should be given to this activity in future as it is central to the development and maintenance of EpiLab's international reputation and to its ability to attract funding. (Page 21)

### ***b) Researchers who have received support to complete their degrees (in-country and abroad)***

**Recommendation 5.b.1:** The results produced in many MSc theses could well have been published internationally to reach a wider audience. EpiLab staff should encourage current and future candidates to publish their work in relevant peer reviewed journals. (Page 22)

### ***c) Quality and quantity of the deliverables of the scientific sections of the Epi-Lab.***

**Recommendation 5.c.1:** EpiLab should routinely include a soundly based economic analysis of the impact of their findings to further strengthen the evidence for recommended changes to public health processes and/or clinical management of particular conditions. (Page 23)

**Recommendation 5.c.2** Immediate attention should be given to developing a reliable cost-benefit analysis of the outcomes of the asthma research to underpin the current efforts to have new procedures adopted as routine practice in Sudanese health services. (Page 23)

### ***f) Integration of TB and TB/HIV in research projects, proposals and other scientific activities in the Epi-Lab.***

**Recommendation 5.f.1** EpiLab represents a considerable customer of the Bionor HIV detection kit. Even more, Sudan and other nations in its region offer an enormous potential market for this type of HIV testing product provided by competing producers. EpiLab should consider the potential price and service benefits that could be obtained by introducing competitive tendering for provision of these kits. (Page 25)

## **Annexes**

Annex 1: Terms of Reference for the External Review Team

Annex 2: EpiLab Medium Term Development Plan 2004-2009

Annex 3: Timetable of Activities for the Review Team



# Annex 1



Norwegian Association  
of Heart and Lung Patients

May 2009/LHL

## **External evaluation of the Epidemiological Laboratory (Epi-Lab), DATE: 25/10 – 01/11 - 2009**

### **TERMS OF REFERENCE**

#### **1. Background**

The Epidemiological laboratory (EpiLab) was established in 2005 as a public health services research centre, situated in a non-governmental, non-profit organization based in Khartoum, Sudan.

The development of the EpiLab is an example of maximizing opportunities and developing a creative approach to addressing challenges and obstacles in a resource-limited environment. The idea was formulated as part of the doctoral thesis of the then-director of the Sudan National Tuberculosis Programme (Asma I. Elsony) 1999-2004. And the center was established on two corner stones:

- The expansion of the rich data base of that thesis has continued without interruption, and
- The team experience gained in establishing, expanding and declaring DOTS-all-over in 2002 and which is currently being used to launch other successful lung health – public health programme

The objective was to use the field work of the thesis, which was based in the routine operations of a national public health programme to create an ‘epidemiological laboratory’ to carry out research (and particularly, operations research) that would identify, characterize and prioritize the challenges and obstacles to health services delivery in a vast and complex country. The framework for routine data collection established for her graduate studies formed a continuing source of information gathering that is available on a continuing basis for evaluation and analysis.

The Epi-Lab continues to play its role as national centre of competence created to develop, guide support national public health projects and programmes to produce efficient and successful outputs. One of the main methodologies by which we achieve these objectives was the link that Epi-Lab is here to create, between Academia and Public health. Through the continues Support and Evaluation to the Health Programmes and its outcomes and the Collective workforce towards the integrative strategies of health, we reach optimal outcomes of these programmes building professional and scientific work capacity all the way.

This was the major mission taken by the Epi Lab which is not only improving the general health situation by contribution to the creation and maintenance of effective health services and ease its access by evaluating the situation, proposing effective action and evaluating the output of this action for the promotion of public health, But also aiming at the following objectives of: maintaining quality assurance, production of well-trained professionals in public health, and stand for the Integrated approach in managing the health of the people which is not only more cost effective but also yield a new generation of competent cadre who have the ability to tackle more than one disease or situation.

#### LHL in Sudan

LHL currently supports three separate yet interlinked entities in the fight against TB in Sudan. The National TB Programme (NTP), the Sudanese TB Patient Association and the Epi-Lab. It is within the recognition that supporting the public TB services, the patient voice and patient centred approach in addition to the academic and operational research aspects of health care in general and TB care in particular. The three entities constitute a country programme approach.

## **2. Justification for the evaluation**

LHL has applied to NORAD for prolonged funding for the Epi-Lab until the end of 2012, and sees the need for an external evaluation of progress according to plans, its work and the results so far. This will take place as a co-operative and mutual learning process through this evaluation. The over all framework for the review is the Medium term-development plan 2004 – 2009 found in the TAC report of September 2005. (the Medium term development plan is found in Annex 1.)

## **3. Objectives and Scope:**

The overall objective of the external review of the Epi-Lab of Sudan is to:

**Assess the progress in relation to 'targets outlined in its medium term development plan'**

**AND**

**To identify strengths and weaknesses in the Epi-Lab to prepare for its development towards a self-sustaining centre for excellence in public health research and policy guidance.**

The external reviewers are specifically required to assess progress and achievements in the following areas:

- A. Epi-Lab's mission, strategy and priorities in the context of LHL and Sudan's priorities and strategies;
- B. Institutional capability (including administration, management, organizational setup);
- C. Epi-Lab's technical advisory role (national, regional and international) and partnerships;
- D. Implementation of research and other scientific activities.

### **Detailed Objectives of the Review**

More specifically, the objectives of the review, under the four overall themes above, are:

#### **A. Epi-Lab's mission, strategy and priorities in the context of LHL and Sudan's priorities and strategies.**

- The policies, strategies, and priorities of Epi-Lab and their relevance to beneficiaries, especially in the context of gender and poverty alleviation.
- The suitability and relevance of Epi-Lab's mission in the context of Sudan's public health needs.
- The effectiveness of Epi-Lab's processes for planning, priority setting, and undertaking of strategies.

#### **B. Institutional capability (administration, management and organisational setup of the Epi-lab).**

- To assess the progress in implementing managerial/administrative policies and plans as outlined in the Epi-Lab's 'medium term development plan'
- To assess the progress in implementing the recommendations from the last TAC mission in 2008.
- To assess the adequacy of Epi-Lab's organizational structure and the mechanisms in place to manage, coordinate and ensure the excellence of the research programmes and related activities.
- To assess the adequacy and donors of Epi-Lab's financial resources available and the effectiveness and efficiency of their management, as well as Epi-Lab's plans for reaching financial sustainability by 2012.
- To assess the strengths, weaknesses, impact and sustainability of Epi-Lab's current operational setup of sub-contracting national consultants to lead its research, scientific and technical assistance activities.

#### **C. Epi-Lab's technical advisory role (national, regional and international) and partnerships.**

- To assess Epi-lab as an advisor to the Sudan's National Tuberculosis Programme (NTP).
- To assess Epi-lab as an advisor to the Federal Ministry of Health of The Republic of Sudan.
- To assess the pattern of utilization of Epi-Lab as a technical advisor for national stakeholders in Sudan: i.e. is it being used as an advisor for specific diseases or on specific issues (for instance: capacity strengthening of the

primary health care services, laboratory services, recording and reporting on specific diseases)?

- To assess the role of the Epi-lab as an international technical advisor (e.g. to the WHO, UNION, Global Fund, etc...).
- To review Epi-Lab's role and participation in relationship between the three organisations that LHL supports in Sudan (namely the NTP, the STPA and Epi-Lab).
- To map out Epi-Lab's relationship to other civil society entities in Sudan, such as NGOs, universities and private businesses.

#### **D. Implementation of research and other scientific activities.**

- To assess the number and quality of publications produced by Epi-Lab researchers who have received support to complete their degrees (in-country and abroad).
- To assess the quality and quantity of the deliverables of the scientific sections of the Epi-Lab.
- To assess financial and human resource allocation to each of the scientific sections.
- To assess to what degree gender issues are integrated into research projects, proposals and other scientific activities in the Epi-Lab.
- To assess to what degree TB and TB/HIV are part of the research projects, proposals and other scientific activities in the Epi-Lab.

### **4. Time Frame**

The duration of assignment by external consultants is 8 days in-country, starting October 25 to November 1, 2009. (Potentially arriving on Saturday the 24<sup>th</sup> of October).

The team-leader will prepare the **first draft** to be submitted to LHL by Mid November 2009. The draft will be sent to the co-operating partners for comments. Comments should be presented to the review team by Mid December.

**The final report** will be submitted to LHL/ Epi-lab by January 31, 2010 in an electronic format.

### **5. Members of the team**

Dr Christopher Scarf, (team leader) Scarf Associates

Dr Ulf R. Dahle, Norwegian Institute of Public Health

..... WHO/EMRO office

-----, will accompany the review team and facilitate the visit.

### **6. Methodology**

- The team will go through relevant documentation provided by LHL and Epi-lab:
  - Medium term development plan, 2004-2009. Annex of TAC 2005 report.
  - TAC annual reports 2005 – 2008

- Meet project staff and partners to discuss and understand their roles and responsibilities with the project, how the components work, the strength and difficulties, and what are their suggestions.
- Meeting will be set up with the following:

## 7. Work plan for the review

The team will communicate by e-mail and agree on the division of activities

Activities for the team in country	Days required
<b>Total</b>	

**In addition there will be post- field visit workdays required for team leader to finalise the report, and the other team members and partners to come with input**



## Annex 2

### EpiLab Medium term development plan, 2004-2009

#### *EpiLab: Strengthening and Improving Quality of Public Health Services*

The Epidemiological Laboratory (EpiLab) was established in 1997 with the objective to build competence and capacity in Sudan to address obstacles in the provision of public health services designed to solve the public health problems of the country and to disseminate knowledge on public health challenges. The EpiLab is based upon the idea of an epidemiological laboratory. This is no institution or project in itself, but a systematic collaborative process of building numerous individual projects to become the knowledge base for improvement of peoples' health. The staff of EpiLab work for a clear common goal. This laboratory has no walls and collaborates across all borders: professional, institutional, religious, political and geographical.

The EpiLab is a non-governmental, non-profit organization based in Khartoum, Sudan. It is a national centre of competence created to guide and support national public health projects and programmes to produce efficient and successful outputs. EpiLab consists of an academic institute to train public health workers, a research unit that focuses on investigation of public health issues in Sudan, and a support unit that provides technical assistance to the Federal Ministry of Health and other organizations in Sudan. The EpiLab was inspired by the success of the National Tuberculosis Programme (NTP) in Sudan where research has led to rapid scaling up and establishment of TB service units throughout the whole country in record time. EpiLab is now aiming to use the successful TB example as a template for other public health problems in Sudan. The main methodology behind this approach is linking on-going research to service delivery, building human resource capacity and crafting effective partnerships along the way. EpiLab activities currently are organized in several scientific sections, including: Child Lung Health, HIV, Asthma, Tobacco Prevention, Bacteriology and Immunology, and Informatics. EpiLab works with the Institute of Public Health at AMST to provide a full programme of education and training for health services personnel. EpiLab also provides support and guidance to researchers working in other fields of public health.

EpiLab proposes the following medium-term development plan, described in a series of inter-related series of work packages. These work packages are to be realized over a period of five years' work, commencing when funds have been identified for the work packages.

#### **Workpackage 1:**

#### **Extending Lessons Learned from Tuberculosis to other Public Health Priorities**

#### **Objectives**

The successful implementation and full national expansion of modern, high-quality tuberculosis services throughout Sudan will be used as a basis on which to strengthen

the quality and access to health services to address other priority public health problems, including HIV, malaria, childhood pneumonia, asthma and tobacco use. Some of these services have made initial progress in standardizing interventions, in defining policies and in commencing implementation. None of them have developed a functional information system that provides full accountability and management support in the manner of the tuberculosis services. Experience with tuberculosis services presents a "model" in which many gaps in knowledge have been filled through the extension of lessons learned and the creation of new knowledge that can guide practice, as part of the implementation of the programme. The focus of this project within the EpiLab will be equity, access, quality and efficiency and the role of the EpiLab will be to provide support to policy development, implementation of practice, monitoring and improvement of policy and evaluation of output and outcome of programmes. It will function as support and pathfinder to strengthen public health services within the country, complementing the routine work of the Federal Ministry of Public Health in the manner in which the international partners served the National Tuberculosis Programme over ten years of development, implementation and strengthening of tuberculosis services.

### ***Description of work***

EpiLab will work as a competence centre to assist the Federal Ministry of Public Health to:

1. adapt international standards on Standard Case Management of HIV, malaria, childhood pneumonia, asthma and tobacco use for application to public health services in Sudan;
2. develop training and monitoring tools and Standard Operating Procedures for these conditions;
3. carry out implementation in a limited number of pilot sites to test the tools and procedures;
4. revise and finalize the tools and procedures, taking into account the lessons learned in the pilot sites;
5. scale up the services to reach all geographical locations that are sufficiently politically secure to be accessible to public services;
6. develop and implement a system of quality improvement to ensure the sustainability and appropriateness of the services.

### ***Deliverables***

1. nationally-relevant definition of Standard Case Management for HIV care, child lung health and smoking cessation;
2. training materials and monitoring tools for HIV care, severe malaria and pneumonia in children, care of persistent asthma in adults and smoking cessation;
3. Pilot evaluation of HIV care, care of severe malaria and pneumonia in children;
4. Definitive Standard Case Management, training and monitoring tools based upon international recommendations but adapted to the local situation for,

- HIV care, care of severe malaria and pneumonia in children, care of persistent asthma in adults, smoking cessation;
5. Nation-wide services for HIV care, severe malaria and pneumonia in children, persistent asthma in adults and smoking cessation.

### ***Milestones and expected result***

- Month 3 : Defined Standard Case Management for HIV care, child lung health and smoking cessation;
- Month 6 : Training materials and monitoring tools for care of the priority conditions;
- Month 8 : Training course for care of the priority conditions;
- Month 9 : Pilot projects in five Sites for care of the priority conditions;
- Month 12: Definitive Standard Case Management, training and monitoring tools for HIV care, care of severe malaria and pneumonia in children, care of persistent asthma in children and for smoking cessation; 150 AIDS patients given correct care; 500 children correctly treated for severe malaria or pneumonia; 500 adults with asthma correctly treated; 150 tobacco smokers who quit;
- Month 15: Training course; Expansion to ten further sites;
- Month 21: Training course; Expansion to twenty further sites;
- Month 24: Services in one-tenth of districts for HIV care, severe malaria and pneumonia in children, persistent asthma in adults and smoking cessation; 1,500 AIDS patients given correct care; 5,000 children correctly treated for severe malaria or pneumonia; 1,500 adults with asthma correctly treated; 1,000 tobacco smokers who quit;
- Month 27: Training course; Expansion to thirty further sites;
- Month 30: Training course; Expansion to forty further sites;
- Month 30: Training course; Expansion to forty further sites;
- Month 36: Training course; Expansion to fifty further sites; Services in one-half of districts; 3,000 AIDS patients given correct care; 10,000 children correctly treated for severe malaria or pneumonia; 2,000 adults with asthma correctly treated; 2,000 tobacco smokers who quit;
- Month 42: Training course; Expansion to one hundred and sixty further sites;
- Month 60: Services to all accessible districts; 10,000 AIDS patients given correct care; 30,000 children correctly treated for severe malaria or pneumonia; 6,000 adults with asthma correctly treated; 7,500 tobacco smokers who quit.

### **Workpackage 2**

#### ***Building Competence for Quality Improvement of Public Health Services***

##### **Objectives**

An important role in carrying out quality assessment / improvement in tuberculosis services in Sudan (and in other low-income countries) has been undertaken by external partners (in Sudan, LHL and the Union). From the outset, the cooperation between the Sudan Ministry of Health, LHL and the Union has envisaged the transfer of competence and skills to partners in Sudan. The EpiLab was established as a first

step to realize this vision. By the end of five years, EpiLab will have gained all the skills and competence to function as a national agency for quality assessment / improvement of public health services and will be in a position to offer these services regionally and globally. The funding obtained in this application will complete the full cycle of transfer of skills, competence and experience from the international level (European non-governmental partners) to the national and regional level.

### ***Description of work***

EpiLab will be developed and work as a competence centre to:

1. coordinate the transfer of knowledge and skills of its technical partners;
2. develop human resources to assume the responsibilities of technical advisor to the national and regional health services;
3. document the role of technical assistance in quality improvement of public health services;

disseminate published material on lessons learned in quality improvement of health services.

### ***Deliverables***

1. establish formal memoranda of agreement among skilled partners for field experience and training;
2. joint field monitoring visits within Sudan for:
  - a. understanding the standard procedures of monitoring and evaluation;
  - b. experience in preparing and presenting formal reports of situation analysis; training on the basics of public health and health services evaluation.

### ***Milestones and expected result***

Month 3 : development of memoranda of understanding with international partners;

Month 8 : situation analysis with international partners of the priority conditions; training course in situation analysis, technical monitoring and programme review; establishment of a plan of training for key personnel within Epi-Lab;

Month 21: joint technical monitoring missions to priority programmes; enrolment of first group of personnel in graduate training; training course in situation analysis, technical monitoring and programme review; joint technical monitoring missions to priority programmes;

Month 30: joint technical monitoring missions to priority programmes;

Month 42: joint technical monitoring missions to priority programmes; regional training course on situation analysis, technical monitoring and programme review;

Month 48: independent review;

Month 60: Verification of high quality services to all accessible districts; 10,000 AIDS patients given correct care; 30,000 children correctly treated for severe

malaria or pneumonia; 6,000 adults with asthma correctly treated; 7,500 tobacco smokers who quit.

### **Workpackage 3**

#### **Developing Critical Thinking to Provide Evidence for Public Health Policy and Practice**

##### **Objectives**

Internationally-adopted standards of care are an important first step to ensuring quality, equity and access to health services. However, these standards must be continuously evaluated, adapted and improved to make progress in tackling these problems. Moreover, mindless implementation without disciplined critical reflection leads to inefficiency and even to harm, as has been clearly demonstrated with global implementation of tuberculosis control policies over the past half century. However, disciplined critical reflection requires skills that need to be taught and are best learned in the context of formal research. The particular skills that are needed and are sorely lacking include skills in basic science, in tools development, in health services research and in social sciences. By the end of five years, EpiLab will present a portfolio of published research in the areas of priority that will be used to revise policy and practice in public health services.

##### ***Description of work***

EpiLab will be developed and work as a competence centre to:

1. be a focal point for critical evaluation of health services nationally and regionally;
2. develop skills for preparing research protocols;
3. develop a series of research protocols to provide the evidence to guide public health policy to address key constraints in health services provision.
4. report the results of these research studies;
5. develop processes by which these results are adopted as policy and practice; carry out methods for evaluating the adoption of new knowledge into policy and practice.

##### ***Deliverables***

1. establish formal memoranda of agreement among skilled partners for research.
2. joint field monitoring visits within Sudan and the region for:
  - a. understanding the standard procedures of monitoring and evaluation;
  - b. experience in preparing and presenting formal reports of situation analysis;
  - c. training on the basics of public health and health services evaluation.
3. specific training for developing skills and activities of research including:
  - a. training in basic subjects required for development of competence in the centre;
  - b. specific training activities focused on protocol development and research methods;
  - c. mentoring of field activities for research.

### ***Milestones and expected result***

Month 3 : development of memoranda of understanding with international partners;

Month 9 : training course on research protocol development; establishment of a plan of training for key personnel within EpiLab;

Month 18: enrolment of first group of personnel in external graduate training;

Month 30: training course on research protocol development; 8 publications in international peer-reviewed journals;

Month 36: completion, reporting and submission for publication of first research projects;

Month 60: completion, reporting and submission for publication of first research projects; 20 publications in international peer-reviewed journals.

### **Workpackage 4:**

#### **Scaling Up Activities of Quality Assessment and Quality Improvement Regionally**

### ***Objectives***

The skills and competence that will be gained in the programme funded by this five-year programme of work are desperately needed in all public health programmes in every country (whether rich or poor). Those developed in this programme will be particularly appropriate and valuable to countries within the region. These skills and tasks will be formulated into formal modules that will be tested, revised and implemented first in national training and then offered as a regional training programme. By the end of five years, EpiLab, together with international and national partners, will have developed a formal national training programme for public health managers to improve skills and competence in quality assessment and quality improvement. This will then be rolled into a regional training initiative and offered to countries within the region.

### ***Description of work***

EpiLab will be developed and work as a competence centre to: provide training for capacity strengthening of skills to undertake technical support at national level, within the region.

### ***Deliverables***

1. specific training for developing skills for technical support at national level;
2. joint field monitoring visits to other countries in the region for:
  - a. developing skills for monitoring and evaluation;
  - b. learning the principles and procedures of situation analysis, technical assistance and programme review; applying the skills.

### **Milestones<sup>3</sup> and expected result**

Month 42: regional training course on situation analysis, technical monitoring and programme review;

Month 50: technical support visit to another country of the region;

Month 59: technical support visit to an additional country of the region; 15 qualified international consultants trained to carry out technical assistance.

### **Workpackage 5:**

#### ***Developing and Disseminating Tools for Quality Assessment / Improvement***

#### ***Objectives***

Based upon the achievements of Project 4, the modules developed for the training initiatives (national and regional) will be formulated into publications and made accessible to countries facing similar problems at a global level. By the end of five years, EpiLab will publish training modules focusing on skills in improving equity, access, quality, efficiency and critical evaluation of public health services, using specific examples from the pilot projects and programme implementation undertaken in Work packages 1 to 3.

#### ***Description of work***

EpiLab will :

1. develop a guide outlining the lessons learned in the activities of technical assistance to public health programmes, based on the experience of provision of technical assistance to the public health programmes involved in work packages 1 to 3;
2. prepare appropriate generic training material for technical assistance to public health programmes, based on the training provided for regional capacity strengthening;
3. test and evaluate the material in the joint evaluation missions and in the regional training course;
4. publish / disseminate the guides and training materials.

#### ***Deliverables***

1. Guide for quality improvement of public health services;
2. Training manual for quality improvement of public health services.

#### ***Milestones and expected result***

Month 48: Guide for quality improvement of public health services;

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<sup>3</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

Month 59: Training manual for quality improvement of public health services.

**Workpackage 6:  
Promoting Economies of Scale and Sectoral Collaboration**

**Objectives**

In order to ensure that the programme is carried out according to the plan and to provide accountability, the EpiLab requires support for project management, administration, technical support and coordination, over and above the human and material resources provided for each of the five work packages. Moreover, one of the most important obstacles to absorption of existing financial resources increasingly becoming available through international sources such as the World Bank and the Global Fund for AIDS, Tuberculosis and Malaria is adequate and sufficient management capacity. The EpiLab requests support for project management and coordination to ensure efficient, quality, timely and accountable work in carrying out the projects, and, in addition, to model appropriate methods for developing accountability in public health services. By the end of the five years, each of the five projects proposed will have been carried out according to plan and budget and a full account will be given for this work. Moreover, lessons learned in management and coordination will be documented and described to assist national programmes and other interested parties to learn how to develop skills and competence in this area.

***Description of work***

EpiLab will :

1. engage the support staff necessary to carry out work packages 1 to 5;
2. prepare a plan of human resources capacity strengthening to build the competence of the centre;
3. develop the information technology for data management, administration and monitoring;
4. strengthen the physical plant to ensure solid support of the work packages and the competence capacity of the centre;
5. document, report and disseminate lessons learned in management, administration, technical support and coordination, relevant to public health administration.

***Deliverables***

1. An appropriate support staff for the competence centre;
2. A plan for recruitment and capacity strengthening of technical staff;
3. A functioning information technology capacity for data management, administration and monitoring;
4. purchase and installation of equipment for Epi-Lab;
5. manual on management, administration, technical support and coordination.



### ***Milestones and expected result***

Month 2 : recruitment of the administrative support staff;

Month 6 : plan of recruitment and capacity strengthening of technical staff; plan of infrastructure strengthening; training course on management and administration.

Month 12: introduction of information technology framework and plan for capacity strengthening; regional training course on data management and quality assurance;

Month 18: technical staff in place and programme of training in operation;

Month 24: data management and analysis software and systems in place;

Month 30: information technology systems standardized, described and disseminated;

Month 48: Manual for management, administration, technical support and coordination for quality improvement of public health services written;

Month 60: Manual disseminated to end-users.

### **Workpackage 7:**

#### **Enhancing human resource capacity for public health promotion and services**

##### **Objectives**

Human resources for providing public health services are in short supply and such personnel that are available often have training that is not focused on public health. Through its involvement in the Institute of Public Health in its parent institution, the Academy of Medical Sciences and Technology, it will train undergraduate and postgraduate students in public health to meet the needs of the health services in Sudan and in the region. The EpiLab aims to provide target-oriented public health educational programs to future and current health personnel in Sudan aiming to build local capacities. All academic activities will be customized to meet the requirements of the health care system in Sudan. In all educational programs, specialists in various fields will provide the training/teaching, including local and visiting experts.

##### **Description of work**

EpiLab, with the Institute of Public Health will offer the following training programs:

1. Undergraduate programs: Bachelor of Science in Public Health
2. Graduate programs: these are in the form of a Masters in Public Health (MPH).
3. Postgraduate training: Postgraduate Diploma in Public Health for health practitioners already holding qualifications in health sciences.
4. Short courses: these are courses on specific public health topics for health care personnel.
5. Seminars and workshops: these activities are arranged as required on issues that are high on the Sudan public health agenda. The aim is to bring together a many stakeholders as possible, to create space for discussion and exchange of ideas, and to reach a consensus on proposed solutions.
6. Conferences: the institute aims to participate in national, regional and international health / medical conferences where representation of Sudan is relevant and beneficial. The institute also plans to host conferences (independently or in collaboration with others) that highlight important public health issues concerning Sudan and other developing countries. These

conferences will also serve as a forum for exploration of different aspects of issues discussed and be a strategic meeting point for potential partners and other stakeholders.

### **Deliverables**

1. ten graduates per year with the BSc in public health
2. a program of short-courses, seminars and workshops to provide for the training needs of the professional community.
3. fifteen abstracts accepted in conferences concerning the work of the staff and students of EpiLab

### **Milestones<sup>4</sup> and expected result**

Month 5: Prospectus for training for the BSc

Month 18: Recruitment of first group of 12 for training for BSc

Month 30: Recruitment of second group of 20 for training for BSc

Month 42: Recruitment of third group of 20 for training for BSc

Month 54: Recruitment of fourth group of 20 for training for BSc

Month 18: Graduation of first group of 12 for training for BSc

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<sup>4</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

## Annex 3

### External Evaluation of the Epidemiological Laboratory (Epi-Lab) 25th October 2009 - 1st November 2009

#### Visiting Consultants:

Dr Christopher Scarf, Scarf Associates (team leader) - CS

Dr Ulf R. Dahle, Norwegian Institute of Public Health - UD

Date	Time	Activity	Consultant(s)	Venue
Sunday 25th October	09.30 a.m.	Arrival of visiting team	CS, UD	EPILAB HQ
	09.35 a.m. - 10.00 a.m.	Meeting with Epilab Director, Prof. Asma Elsony	CS, UD	
	10.00 a.m. - 01.00 p.m.	Review of visit schedule	CS, UD	
	01.00 p.m. - 01.30 p.m.	Lunch break	CS, UD	
	. 01.30 p.m. - 02.15 p.m.	Introduction to Epi-Lab - 2005-2009	CS, UD	
	02.15 p.m. - 03.30 p.m	Introduction to Epi-Lab's sections (Tuberculosis, Child Lung Health, Tuberculosis in Animals, Tobacco, and Asthma) - 15 minutes for each section	CS, UD	
	03.30 p.m. - 04.00 p.m	Introduction to Epi-Lab's projects (TRIAGE-PLUS and CLHS) - 15 minutes each project	CS, UD	
	04.00 p.m. - 04.15 p.m..	Review of Epi-Lab's publications (up to 2009)	CS, UD	
	04.15 p.m. - 04.45 p.m.	Q&A Session with Epi-lab team	CS, UD	

Monday 26 <sup>th</sup> October	09.00 a.m. -11.00 a.m .	Meeting with Epilab director and office manager: admin and finance meeting	CS, UD	EPILAB HQ
	11.00 a.m. - 01.00 p.m.	Meeting with Tobacco Section	CS, UD	
	01.30 p.m. - 03.00 p.m.	Meeting with Child Lung Health Section	CS, UD	
	03.00 p.m. - 05.00 p.m.	Meeting with Asthma Section	CS, UD	
Tuesday 27 <sup>th</sup> October	09.00 a.m. - 11.00 p.m.	Visit to Epilab TB/HIV centre: Bashair Hospital or Orner Nimeri Centre (TBC)	CS,UD	Bashair Hospital
	11.30 p.m. - 01.30 p.m.	Meeting with TB Section	CS, UD	EPILAB HQ
	01.30 p.m. - 02.30 p.m •	Lunch break		
	02.30 p.m. - 04.00p.m.	Report Writing		
Wed. 28 <sup>th</sup> October	09.00 a.m. - 11.00 a.m .	Meeting with TB in Animals Section (inc. PhD Student Presentation)	CS, UD	EPILAB HQ
	11.30am to 01.30 pm	Visit to Sudan National Tuberculosis Program	CS, UD	SNTP
	02.00p.m.-05.00p.m.	Report Writing	CS, UD	EPILAB HQ
Thurs 29 <sup>th</sup> October	10.00 a.m. - 12.00 p.m.	Meeting with Comprehensive Approach to Improved Lung Health (CLHS) Project Team	CS, UD	EPILAB HQ
	12.15 p.m. - 02.15 p.m.	Visit to Sudanese TB Patients' Association (STPA) - TBC	CS, UD	STPA
	02.30 p.m. - 03.00 p.m	DAL Group for lecture on Breast Cancer early detection	CS, UD	DAL Group
	03.00 p.m. - 05.00 p.m	Meeting with TRIAGE-PLUS Project Team	CS, UD	EPILAB HQ

Saturday 31 <sup>st</sup> October	09.00 a.m. - 12.00 noon	Meeting with Information Officers to review Epilab databases	CS, UD	EPILAB HQ
	12.00 noon - 12.30 p.m.	Lunch break	CS, UD	
	12.30 p.m. - 02.00 p.m.	Meeting with Directorate of Non-Communicable Diseases, Ministry of Health	CS, UD	
	02.00p.m. - 04.00p.m.	Meeting with Data Management Consultant	CS, UD	
	04.00p.m. - 04.30p.m	Meeting with Epi-Lab's GIS Officer: review of Epi-Lab's sections' maps	CS, UD	
	04.30p.m. - 05.30p.m.	Debriefing to Epi-lab Director and staff	UD	
	05.30 p.m.	DEPARTURE	UD	
Sunday 1 <sup>st</sup> November	09.00 a.m. - 11.00 am	Meeting with Epilab director and office manager: admin and finance meeting	CS	EPILAB HQ
	02.00 p.m. - 03.00 p.m.	Debriefing to Epi-lab Director and staff	CS	
	01.00 p.m. - 02.00 p.m.	Debriefing to WHO Sudan Representative - TBC	CS	WHO Sudan
	03.30 p.m.	DEPARTURE	CS	