

FINAL REPORT OF THE PANEL
FOR THE 2010 SETI* REVIEW OF

The South African Medical Research Council (MRC)

(* SETI= Science, Engineering and Technology Institution)



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COVERING LETTER

TO :

THE ACTING PRESIDENT AND EXECUTIVE MANAGEMENT OF THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL; THE CHAIRPERSON AND MEMBERS OF THE MEDICAL RESEARCH COUNCIL BOARD; THE MINISTER AND DIRECTOR-GENERAL OF HEALTH; THE MINISTER AND DIRECTOR-GENERAL OF SCIENCE AND TECHNOLOGY; AND TO WHOM ELSE IT MAY CONCERN

We are pleased to submit our Review Report on completion of our work, performed as per the general specifications in our briefing documents. We have concentrated on high-level analysis of key documentary materials and the insights we could muster from the large number of grouped and individual interviews we conducted between 30 May and 4 June 2010. We were pleased to receive written clarifications and error-corrections from the Acting MRC President and the other Executive Committee members in respect of a near-final draft version of the Report, and from the MRC Board, at a presentation, of the same draft Report.

Our approach has been to identify problem areas in the positioning of the MRC in the National System of Innovation; MRC governance; operational issues; outputs and outcomes; the special problem of the sharp recent decline in the volume and quality of South Africa's clinical research; and benchmarking the MRC against selected comparator institutions in other countries. We have sought, wherever possible, to suggest and recommend solutions to the problematic issues as we identified and perceived them. We sincerely hope that this will bear fruit in terms of future MRC functioning and the execution of its mandate.

It must be understood that the review is necessarily incomplete, as the available time has been limited and the scope of MRC activities is far larger than was anticipated. We have, regrettably, been unable to provide detailed reviews of important MRC-led enterprises such as the South African AIDS Vaccine Initiative (SAAVI) and the Indigenous Knowledge Systems programme Research Unit, neither has there been time and the opportunity to review the work of individual units in any detail. We must therefore recommend that such reviews take place outside the purview of the SETI review system, as there would otherwise not be time to deal effectively with the 'big issues' concerning the MRC as a major research organisation.

This review has come at a critical time when a number of key decisions will be made in relation to the MRC. A new Board and a new President must be appointed soon, amendments to the MRC Act are due to be put before Parliament in 2011, and a MRC Strategic Plan for the period 2010-2015 must be generated. We have suggested and motivated that the appointment of a new Board should precede that of the President, and that the drafting of amendments to the MRC Act and the generation of a new MRC Strategic Plan should follow these necessary first steps.

Our major recommendation on the locus of government stewardship has been made in the utmost good faith, based on our findings and after careful reflection, in the national interest. Our thinking is based on the fruitful adoption of a pervasive national 'Research for Health' model, in which research-derived outputs, from whatever quarter, are translated into improved health at a national level. We have also been mindful of the need in the health sector for enhanced innovation and a more inclusive 'knowledge economy' and the evolving 'bioeconomy' within it.

We have made motivated recommendations for improved MRC governance and a more consultative internal environment, re-balancing of the MRC's resource allocation model, sharpening of the MRC's mandate, improvement of the information conveyed by output and outcome indicators, revitalisation of clinical research for health and innovation, and many other suggestions and recommendations.

The Panel was constituted as four independent members (myself and Prof H Coovadia from South Africa, Prof N Sewankambo from Uganda and Dr R Goyal from India), plus one representative each from the Departments of Health (Prof G Padayachee) and of Science and Technology (Ms G Loots). As chairperson, I insisted on all panelists applying their minds to the review as personal viewpoints, excepting when the government officials indicated clearly that they were conveying a departmental view to us for our consideration. The drafting to consensus of the key chapters 2 and 3 was done by the four independent panelists, after which the government officials made inputs which were considered by the four independent members and either accepted or rejected by them in consensus. Prof Padayachee and Ms Loots are thus not responsible for the recommendations in these and other chapters that affect their departments; their contributions as panellists, nevertheless, made it easier for the others to reach a consensus position on the matters of this kind.

We wish to thank Dr Ali Dhansay, Acting MRC President, and his staff for the able organisation of the contact review process, the provision of materials, and cordial cooperation at all times.

Dr Sibongile Gumbi, who was contracted to assist in note-taking during our interviews and in the production of the Review Report, is warmly thanked for her services.

Finally, I must thank my fellow-panellists for their hard work and persistent commitment to this arduous process.

Wieland Gevers,

*REVIEW PANEL CHAIRPERSON
July 2010*

FINAL REPORT OF THE PANEL FOR THE 2010 SETI REVIEW OF THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL (MRC)

EXECUTIVE SUMMARY

This Report is submitted on completion of the Review Panel's work, the first external review of the MRC since 2001, performed as best possible according to the general specifications in the brief. We have focused on the positioning of the MRC in the National System of Innovation (NSI), MRC governance, operational issues, outputs and outcomes, and the special problem of the sharp recent decline in the volume and quality of South Africa's clinical research. We have sought wherever possible to suggest and recommend solutions to problematic issues as we identified and perceived them, and hope that this will bear fruit in terms of future MRC functioning and the execution of its mandate.

This review has come at a critical time when a number of key decisions will be made in relation to the MRC. A new Board and a new President must be appointed soon, amendments to the MRC Act are due to be put before Parliament in 2011, and a MRC Strategic Plan for the period 2010-2015 must be generated. We have suggested and motivated that the appointment of a new Board should precede that of the President, and that the drafting of amendments to the MRC Act and the generation of a new MRC Strategic Plan should follow these necessary first steps.

The Panel was constituted as four independent members (Prof W Gevers and H Coovadia from South Africa, Prof N Sewankambo from Uganda and Dr R Goyal from India), plus one representative each from the Departments of Health (Prof G Padayachee) and of Science and Technology (Ms G Loots). All panelists applied their minds to the review as personal viewpoints, excepting when the government officials indicated clearly that they were conveying a departmental view for consideration. The drafting to consensus of the key chapters 2 and 3, respectively on the optimum positioning of the MRC in the NSI and on MRC governance, was done by the four independent panelists, after which the government officials made inputs which were considered by the four independent members and either accepted or rejected by them in consensus. Prof Padayachee and Ms Loots are thus not responsible for the recommendations in these and other chapters that affect their departments; their contributions as panellists, nevertheless, made it easier for the others to reach a consensus position on the matters of this kind.

POSITIONING THE MRC IN THE NATIONAL SYSTEM OF INNOVATION

The Review Panel has taken account of the salient historical trajectories which have led to the present organisational features and position of the MRC in the country's research system. The South African Medical Research Council was created in 1969 out of a pre-existing health-research-focused funding committee of the CSIR. It provided a mix of large-scale and longer-term support for research units built around outstanding leaders on their topics of interest, small and shorter-term grants for individuals, and capacity building and facilitation systems mainly comprising bursaries and conference travel awards. The focus was initially on the mechanisms of causation, progression and reversal of common diseases (which were also the pre-occupations of health-professional training at the time), augmented in later decades by the newly evolving disciplines and training fields of public health, primary health care and health systems.

An early decision to incorporate the National Research Institute for Nutritional Disease into the MRC led to the first intramural activities involving researchers employed and hosted by the Council, which opened the way to the creation of a number of other units mainly devoted to systemic service and development activities, associated with the building and steady expansion of the main MRC campus in Parow Valley in Cape Town, and later to regional facilities in both Durban and Pretoria. The intramural programme expanded over the years as a system devoted to a significant extent to public health research, until the present era where it largely dominates the organisation's organisational model and budget, because of its extensive infrastructural, financial, human resource and other operational needs, and its dependence on external grants acquired from both within and outside the country, all coming with stringent regulatory and reporting requirements. As a result, most of the substantive enabling support previously provided to extramural units in the form of formal posts and equipment has been progressively diluted down to 'seed funding' for operational costs, short-term assistantships and minor equipment.

Calculations based on recent annual reports and business plans show that the average direct MRC expenditure per published peer-reviewed article in an extramural unit is about R60 000, while that of papers published by an intramural unit is about R360 000, the heavy MRC overhead not included. The average MRC baseline expenditure per postgraduate student graduated in 2008-09 was about R300 000 in extramural units (90 graduates), and R3.4 million in intramural units (26 graduates). Most observers and advisors (including SETI Reviewers) in the past have encouraged the MRC to use the higher education infrastructure to 'stretch' its resources by contracting the intramural programme and enlarging the extramural programme. This has not been achieved to date.

The MRC Act of 1991 which still regulates the activities of the Council, specifies that the 'Objects' of the MRC are to be achieved "through research, development and technology transfer to promote the improvement of the health and the quality of life of the population of the Republic, and to perform such functions as may be assigned to it under the Act." The simple fact is that human health is impacted by many factors in the society and environment, and many organisations legitimately regard it as part of their mandate to address these factors in order to help improve the health of the population. The Review Panel is of the unanimous view that the concept of national 'Research for Health' is the most powerful guiding principle for addressing organisational issues in the NSI (and for framing recommendations throughout this Report). Acceptance of the 'Research for Health' paradigm helps both to justify the continued existence of the MRC, and to sharpen the focus on its 'core business', the investigation of basic mechanisms of common diseases or ill-health, including the search for preventive strategies and effective therapies, whether they be in the bio-pathological, psycho-pathological or socio-pathological sub-domains. This is an area in which innovation and translation is of the essence, with countless opportunities for research impacts through better practices and new products.

The basic organisational issue for the MRC is the line responsibility for it held by the national Department of Health (nDoH), given the latter's necessary focus on the challenging practical matters involved in the equitable delivery of promotive, preventive and therapeutic health care to the country's population of 46 million people. We find much evidence for the view that the nDoH has apparently so far been able to interest itself, and to a limited extent, only in the direct 'public health/ health systems' activities of the MRC. In addition, many

necessary stewardship functions have not been optimally performed.

The actual scope of the 'Research for Health' needed by the nDoH for delivery of its health-care mandate extends far beyond that which the MRC can possibly deliver, which is why organisations not reporting to it, such as the CSIR and the HSRC, are performing a great deal of such research, the NRF is providing an estimated 15% of its extensive agency funding for health-related research, and an enormous amount of HIV and TB research, extending across the basic, clinical, human/social and innovation spectrum, is currently organised on university campuses as a result of foreign investment, only loosely connected to the MRC's unit system. Some of the work done by the Agricultural Research Council (ARC), the Water Research Commission (WRC) and other non-governmental bodies such as the Health Systems Trust (HST) are also important components of national 'Research for Health'. The National Health Research Committee (NHRC) was built into the National Health Act of 2003 precisely to help the nDoH 'make sense' of all these activities in terms of both needs analysis (research priorities) and assisting in devising strategies, suggesting policy, improving practice, and disseminating information within the national health system and especially the provincial health departments and delivery agents at local government level. (This would obviously require recognition of the increased logistic and moral support required by this fledgling Committee.)

We therefore recommend that the MRC should move to the Department of Science and Technology (DST) in terms of its 'solid' reporting line, as has been and is still the case for both the presently flourishing HSRC and CSIR.* This will enable the nDoH to draw on the entire NSI for relevant outputs of national 'Research for Health', irrespective of their origin, and remove a responsibility that has had a low priority in the pressurised agenda of the Department. At the same time, the move would enable the key R&D sector of 'health and medical research', to become fully embedded in the 'bioeconomy' and 'knowledge economy' strategies and plans of the government. Both the MRC's (expanded) agency-type extramural functions and its (reorganised) intramural functions (especially the key area of innovation) would also be enabled to benefit fully and equally from the major stimulus packages represented *inter alia* by the research chairs, centres of excellence and equipment initiatives of the DST.

The Panel has striven to design other reporting models that would leave in place the present 'solid line' of the MRC to the nDoH combined with a 'solid but dotted line'

*: Prof G Padayachee's dissent from this recommendation is here recorded.

to the DST. These models, unfortunately, all fail because they carry little conviction of early gains in strengthening the MRC because of the many factors rendering it unlikely that the otherwise heavily pre-occupied nDoH can improve its stewardship of the MRC; because they leave the MRC isolated as a 'struggler' in the National System of Innovation (NSI); because they maintain the present depressed state of clinical research; and, perhaps most important and most strikingly, because they deprive the nDoH of the full benefits of the concept of 'Research for Health', in which evidence-based solutions to health problems are drawn from all parts of the NSI.

RECOMMENDATIONS

1. South Africa (and by extension the national Department of Health) should adopt the broad organising principle of 'Research for Health' in its approach to the mobilisation of new knowledge in the support of health promotion and health-care provision.
2. The MRC should move to the DST in terms of its government stewardship, as an organisation with a majority of 'early-stage and/or cross-cutting' research activities, to ensure its full inclusion in the evolving national 'knowledge society', as a science council mandated to contribute significantly to the total array of 'Research for Health' efforts in the country. This change should be incorporated into, and elaborated in, an amended MRC Bill to be put to Parliament in 2011.*
3. The National Health Research Committee in the national Department of Health should be strengthened to fulfil the key function of scanning 'Research for Health' activity throughout the National System of Innovation, including that performed on a large scale by the MRC, in order to help coordinate the system responsively to needs, and to channel useful outputs into the health services generally.
4. A body analogous to the National Health Research Committee should be established in the DST to help stimulate and coordinate 'Research for Health' programmes throughout the National System of Innovation, in close liaison with the reorganised and properly empowered National Health Research Committee.

GOVERNANCE ISSUES IN THE MRC

As the MRC Act of 1991 has not been amended to date, the Panel has had to use the existing Act to guide its assessment of the current governance function in the

MRC. The Act under its clause 18 makes provision for the making of "Regulations" by the responsible Minister, but we were unable to establish whether any such Regulations have in fact been issued (and not subsequently revoked) during the period 1991-2010, and, if so, to have sight of them. The 2006 DST 'Policy on Governance Standards' provides an updated (relative to the 1991 MRC Act) version of prescribed board governance of a SETI like the MRC.

We have found that the MRC Board, while complying with many of the required provisions, appears not to have a 'shareholder compact' with the Minister of Health, nor a board 'charter' setting out its responsibilities. There also appears to be an absence (or perhaps inadequacy) of the requisite 'Board Secretary', which renders difficult the resolution of issues concerning the correct minuting of Board (or Executive Committee) decisions, conflicts of interest, and of Board operations generally.

Tensions involving the MRC Board include a pending court case in which the (intramural) Unit Directors are suing the MRC in the matter of a number of decisions made by the Board (of which some have apparently already been reversed). Another source of tension between the Board and the MRC Executive is the decision unilaterally to requisition a forensic audit of certain MRC sections/functions made by the Board in the last year; the Review Panel was not made aware of the reasons for this step, nor of the brief itself (the chairperson was informed well after all interviews had been completed, but decided not to make the contents known to the other panellists, as the outcome is still in the hands of the Board). The Executive Committee of the Board admits to a poor relationship with the Executive, or at least one that needs significant improvement. The problem, as seen by the Executive, amounts to a perception of inappropriate micromanagement of some MRC affairs by the Board, not necessarily in bad faith, but possibly arising from factors such as differences in the interpretation of roles and lack of a common vision. The tension between the 'pure corporate governance' and 'leadership in research strategy' roles of the Board is palpable, much of it embedded in the literal provisions of the MRC Act, and impairs the effectiveness of both aspects of their functioning. An extremely important issue is the manner and extent of delegation of authorities by the Board to the MRC President and the Executive in general.

The crowding of Board agendas with fiduciary matters, requiring urgent or steady attention, seriously and unavoidably diminishes the time available for debates on the 'core business' of the MRC, namely its considerable

* : Prof G Padayachee's dissent from this recommendation is here recorded.

contribution to the country's 'Research for Health'. The foreign MRC-equivalents we examined all use 'Scientific Advisory Committees' and the creation of the necessary time and space for debates and workshops (some of them in the public domain to 'spread the net') as well as the involvement of outside expertise in this area, will be very valuable and answer some of the criticisms about 'closed planning' levelled at the present MRC system during our interviews, especially those conducted with extramural directors and Deans of health sciences.

It would accordingly be a good idea to re-cast the present Board Committee on Research and Development as a 'Scientific Advisory Committee' (SAC) of the MRC Board, which should be actively involved in the generation of MRC strategic and business plans.

The formal appointment appears to be a necessity of a 'Board Secretary', from amongst the MRC's senior administrative staff, who would be responsible and accountable for the preparation; mandated revision/confirmation and finalisation of all agendas, minutes and other records of the Board; the required shareholder compact with the Minister; the Board charter; 'conflict of interest' statements; the formal attendance register; and other administrative details. The required evaluation of Board members, of the Board as a whole, and of the chairperson, should be conducted by an outside panel, transparently appointed for this purpose by the Minister, and include at least one current Dean of a Health Sciences Faculty. The process and criteria should ideally be laid down in Regulations promulgated by the Minister, and should include scrutiny of contextually appropriate documentation provided by the Board Secretary.

We believe the MRC community should carefully examine a 'university senate-type model' as a senior consultative body which would provide a regulated forum for the unit directors across the system, plus some elected representatives of the second-tier researcher community; chaired, as is the case with universities, by the President. Such a 'Senate-equivalent' body would have terms of reference approved by the MRC Board and administered by the MRC President.

The appointment of a new MRC President is imminent. The competence for making the appointment lies with the Board and with the responsible Minister who must be 'in concurrence' with the decision. The Act requires the President to be a registered Medical Practitioner which is an out-of-date, inappropriately restrictive requirement that the Review Panel strongly believes should be dropped

from the amended Act. The possibility that the Minister can waive this requirement should be explored urgently. The President needs to be someone who internally commands the respect of the Board, of executive management, and of the senior research leaders of the organisation; and externally relates well and confidently to the relevant upper levels of government, the presidents of other science councils, university leaders and researchers. This is a 'tall order', but the stakes are high and the rewards of an outstanding appointment enormous. Conversely, the cost to the MRC of a 'bad' or indifferent appointment will be considerable. The new President must find the right balance between hands-on, in-house leadership and external advocacy and relationship-building.

RECOMMENDATIONS

1. The Governance standards set out for Science, Engineering and Technology Institutions (SETIs) should be meticulously followed by the MRC Board, including the (as yet not achieved) signing of a 'shareholder compact with the responsible Minister, the drafting and adoption of a 'board charter', external evaluation of the board, and the appointment of a 'board secretary'.
2. The appointment of a new MRC Board should be performed as soon as possible, following precisely the specifications of the present MRC Act of 1991, in placing a strong emphasis on the need on the part of MRC Board members to have 'distinguished them in any branch of medical and health research'.
3. The new MRC President should be appointed by the new Board, not the present one, and the responsible Minister should be asked to waive the requirement for a medical qualification/registration, if that is possible.
4. The MRC Act of 1991 should be amended to achieve the required kind of collective research distinction for the Board, but also representation of four major components of the national 'Research for Health' system, namely the Department of Science and Technology, the national Department of Health, the Council for Industrial and Scientific Research, and the Human Sciences Research Council.
5. The amended MRC Act should also specify how the MRC President is to be appointed, and the responsible Minister should promulgate Regulations that spell out in full how and when new Board members are appointed.
6. Special attention should be given in the amended MRC Act to the manner and extent of the delegation of functions and powers by the MRC Board to the MRC President and the MRC Executive in general.
7. The Board should establish a 'Scientific Advisory Committee' with suitable terms of reference that would require it to advise the Board on research

strategy and policy in a way that also draws on internal and external consultative mechanisms.

8. The MRC Executive Management Committee should establish a general research-consultative body within the organisation on the lines of a university senate, involving at minimum all the directors of the intramural and extramural units, but also a (minority) elected representatives of other tiers of researchers in the organisation.

OPERATIONAL ISSUES WITHIN THE MRC

The MRC has a flat organisational structure in that 40-plus leaders of the core MRC activities, the intra- and extramural unit directors, all report to a single Vice-President for Research who is but one member of the five-person (recently became four-person) Executive Management Committee (EMC). We believe that there should be three Vice-Presidents for research activity areas, and one of the main roles of Vice-Presidents should be to ensure high morale; fitness for purpose; and optimised support from the organisation by keeping in close touch with the unit directors and dealing with problems that impair their performance as research leaders who have been selected for their unique intellectual and scientific leadership qualities. We strongly recommend the contraction of the number of support service heads in the EMC to one member (the 'Executive Director of Support Operations'), with the Finance Director reporting directly to the President.

The Panel believes that the executive management of the MRC has been unwilling or unable to address the tough issue of applying the basically sound 'MRC unit system' within its own walls. This has not only brought constant and increasingly onerous pressure to bear on the support services (which in the 2010/2011 Business Plan will absorb about R70-80 million or 25% of the MRC's baseline budget of R280 million) but has prevented the renewal and restructuring of units when the time has come, so to speak. The logic of the unit system is to make the resources available to the MRC go as far as possible, and that requires executive management to stick to the 'rulebook' (including an absolute insistence on high merit on the part of unit directors and the proper use of external reviews). The criteria for establishment or renewal of all MRC units should be well-formulated and rigorously applied, and comprehensive feedback provided. Amongst others, the criteria should include:

- Originality and power of ideas under exploration
- Quality and number of peer-reviewed publications, international and local, articles, books, reviews and (invited) conference proceedings
- Number of enrolled and graduated Masters and Doctoral students
- High-quality scientific staff or collaborators recruited
- Formal commissioned reports produced
- Patents registered and commercialised
- Demonstrable impact on policies and practices, here and elsewhere
- 'Academic stature' of director, nationally and internationally, and of senior staff
- Funding attracted

We must mention that we engaged with some units that were poorly conceived, and others that were well past their 'sell-by' date.

The Review Panel was impressed by the design of the MRC's 'Collaborative Research Programmes and Groups' now in place or envisaged. They are basically a good idea, in our view, encouraging collaboration, attracting new resource flows, and building capacity through complementation and sharing of resources. The programmes concerned need, however, to be carefully monitored and 're-optimised' from time to time.

The reviewers found that there were challenges at the MRC in respect of operational support provided to the research community by the organisation's Finance and Human Resources/Operations functions. Finance systems seem not to be designed to enable research, and therefore the finance department must find a way to streamline financial systems and processes making sure that there is ease of use, efficiency, accountability and transparency. Equally problematic issues were raised with the Panel concerning the human resources support functions at the MRC. A generally agreed 'Standard Operating Manual' for many management and support functions, including service standards for delivery, may be helpful in increasing transparency and improving service performance across the organisation.

One of the positive capacity-building initiatives at the MRC is the post-graduate training programme. South Africa generally has a weak PhD output at just over 1000 PhD graduates per year. The MRC through its internship programme, is trying to double the number of its Masters students who progress to PhD level. This has resulted in 62 PhD (about 6% of the national total) and 59 Masters graduates from all MRC units in 2008/09. New Masters

Students are guaranteed PhD support from the start of their studies.

The efforts at internal transformation of the MRC are generally impressive, but the critical 'apex' development of research leaders lags and needs to be improved by a careful study of 'what works and what doesn't' in terms of internal case histories, observed career trajectories, and lessons from other organisations.

The Review Panel was not impressed by the approach of the MRC to capacity building in the historically disadvantaged universities. The use of local workshops on proposal writing and the like cannot compensate for the absence of high-level strategies to establish productive research enterprises, perhaps along the lines of the very successful NRF-Royal Society (UK) partnership which has succeeded, at comparatively low cost, in establishing centres of excellence in several cutting-edge fields at four such universities in South Africa.

It is the strong view of the Review Panel that the MRC needs a much higher level of baseline funding than it currently receives, to meet its research mandate. The problem is that the National Treasury will likely find it difficult to increase the quantum in recession-affected times if the much more cost-effective extramural programme is not expanded at the cost of the resource-intensive intramural programme, simultaneously lowering the 'overhead' of a hypertrophied support section. Thus the revised MRC's 2010/11 Business Plan indicates that the MRC's Support Directorates will expend about R70-80 million out of a total of about R 280 million baseline funding. The fact that the actual turnover of the MRC is expected to be in the region of R 540 million (baseline plus R 260 million of outside income) does not, in our view, justify the existing high administrative costs. Reducing these will need significant restructuring of the intramural programme and down-sizing of the support directorates.

The MRC suffers from the outside perception that its grants are pitifully small and not worth the considerable effort and time involved in applying for, and reporting on, these grants. The MRC has a one-year funding cycle, which means that units can only apply once a year for funding, as opposed to more suitable cycles of two to three times in a year, to accommodate changing research circumstances. The retention of promising and valuable talent in the extramural units remains a challenge, as MRC grants cannot be used to fund open-ended research posts. As a result, unit directors are forced to place research staff on short-term contracts that are limited to

the duration of research contract work. This is not an ideal situation as units lose valuable skills and experienced staff at, or even before, the end of projects. An additional serious challenge is that external units generally receive their funding allocation months later than it is expected (usually arising from delays in the approval of business plans), and the host universities impose interest payments on bridging funding provided out of necessity.

During the course of conducting the interviews, several weaknesses that amount to risk management issues were identified. These include the unreliable financial management of grants by the finance support system (where there is a perceived weakness in monitoring and seeing to the proper management of project funds), weak succession planning (no 'logical', high-level successor identified for a key enterprise), loss of potentially outstanding grantees (who regard the MRC as a poor and troublesome funder), and administrative demands created by devolution to busy researchers of the administrative loads of support staff.

RECOMMENDATIONS

1. The issue of effective line management in the MRC's research organisation needs to be addressed by a new determination of the number, job description and key roles of the Vice-President(s) responsible for research and the Executive Director(s) responsible for support services. We propose an Executive Management Committee comprising three Vice-Presidents for research and one Executive Director for Operations, with the Executive Director Finance reporting directly and separately to the President.
2. The new MRC President needs to be a distinguished researcher with a strong record of 'turning around' struggling organisations.
3. The 'rulebook' for the establishment, continuation, restructuring and closure of research units needs to be clear on both process and criteria; and needs to be rigorously applied after external review.
4. The next business plan and budget must be directed to significant scaling down of the excessive burden of administrative 'overhead', and the cost-effective shifting of resource allocation to new and existing, high-quality extramural activities across the spectrum of the research mandate.
5. The MRC support services need to be 'true servants' of the research enterprises making up the core business of the organisation, by shedding unnecessary activities and concentrating on efficiency and effectiveness in key processes.
6. Attention should urgently be given to address the many concerns of extramural units, these can, in fact, quite easily be addressed; as well as others

- that might justify additional resourcing.
7. The MRC needs to review how it optimises its access to available funding opportunities, through a proactive approach to leverage from government and other sources.
 8. Collaborative programmes and groups must be strictly monitored to ensure they are 'adding value beyond the sum of the parts'.
 9. Research linkages with other SETIs need to be significantly improved, including those with the Technology Innovation Agency (TIA), NHLS, HSRC, NRF and CSIR.
 10. Improvements in the synergies between intra- and extramural activities should be sought.
 11. The approach to research development in the historically disadvantaged universities and universities of technology should be reconsidered in light of interventions that have worked and those that have not.
 12. An 'open access' institutional repository should be established for deposit of all accepted, peer-reviewed papers, books and conference proceedings, as well as dissertations, proposals and reports, etc
 13. The annual 'business plan cycle' should be organised with strict time lines for all participants to ensure timely completion, delivery and approval.

- Transformation and development plan
- Innovation and technology transfer
- Informatics and knowledge management
- Research translation
- Stakeholder management

Many of the key indicators under 'research translation' reflect very impressive outcomes of MRC work in terms of national health benefits. The Panel has examined this and other information in the KPI schedules very carefully, and believes that in general the indicators are objectively laid out. On the face of it, they often show impressive progress in the aspiration to effect improvements on most fronts, and to attaining many of the targets set for the year in question. There are national and global impacts of MRC research findings, such as changes in national policies; changes to guidelines or policies in international institutions such as the World Bank, UNAIDS and the WHO; and implementation of research-based recommendations.

One of the main difficulties with the KPI as presented in the MRC Annual Report is the context-free way in which some of the indicators are set for the organisation. It is important to know, for example, how some of the quantitative indicators compare with those of other organisations, or better, how they position the MRC as an increasingly (or decreasingly) active contributor to the whole knowledge-producing system in South Africa, or, according to the 'Research for Health' principle, how much the parlous South African health situation is being ameliorated, year after year. Some of the indicators in the MRC Reports show this, but many do not.

EVALUATION OF THE OUTPUTS AND OUTCOMES OF THE MRC

Internally, performance indicators drive behaviour, while in the external context they provide a proxy by which external stakeholders assess the quality of the research output of an institution. Performance measures are equally important in monitoring progress in the implementation of a given strategy or policy, as well as comparing the performance of different SETIs within the NSI. The SETI 'Governance Standards' set by the DST in 2006 are emphatic about the importance of key performance indicators (KPIs) in regular reporting, based on five perspectives: stakeholder; financial and investment; organisational; learning and growth; and human resources and transformation. A similar set of KPIs is laid out in each of the last three or four MRC Annual Reports. They are presented under a large number of headings (more than the minimum prescribed by the SETI 'Governance Standards'), but these are present in the list of headings for the year 2008/09:

- Research strategy and business plan
- Financial strategy and business plan
- Opportunity and risk management
- Human capital management and development

The Panel believes that public research organisations like the MRC have to use the most sophisticated measuring tools available, adapt them to widespread local usages, and link them to one or more desired outcomes, if they wish to present a realistic picture of their performance as it is embedded in the whole NSI of the country. In the case of publications, this means *inter alia* using the fractional method of allocating credit to collaborating institutions; breaking up publication statistics into 'first-authored' and non-first-authored' papers; looking at who publishes, who is first author, and who is senior author; deriving average citation rates and impact factors, respectively, for each article and the journal in which it appears, or for a randomised sample; dividing up papers into 'international' and 'national' categories, and the former into 'foreign' and 'local'; and perhaps even acknowledging 'ownership' share in certain papers where the majority support has been from elsewhere. In each case, the desired outcome(s) must be functionally linked to the listed output(s).

RECOMMENDATIONS

1. The MRC's current approach to performance reporting needs to be revamped to become more nuanced and informative, expressing outputs in different ways in the context of different desired outcomes.
2. Such an approach would be useful for internal strategic planning purposes and to project a better understanding externally.
3. Particular attention has to be given to the embedding of MRC outputs in the context of national policies and comparable datasets of the system.
4. A national best-practice system for key performance indicators in the case of South African research organisations should be developed with suitable partners within the National System of Innovation, in order to provide consistency and accuracy in a highly informative performance indicator system which always links outputs to desired outcomes.

THE SPECIAL ISSUE OF REVITALISING CLINICAL RESEARCH IN SOUTH AFRICA

The Review Panel, in addressing the strengths and weaknesses of the MRC and the organisation's response to the critical situation of health and health services in South Africa, was struck by the small component of the MRC's current research portfolio that is dedicated to clinical research, other than in the form of clinical trials for infectious disease therapies or population-based socio-behavioural studies. This was the case when it would seem that there was a need for an increase rather than a decline in this fundamentally important field. MRC-supported work in the clinical field seemed to be done in a small number of units or in the form of modest self-initiated studies.

In the above context, the Panel noted with interest and approval that the MRC proposal to establish a 'Clinical Trials Research Initiative', intended to "change the paradigm by which the MRC conducts clinical trials research in many of its research entities". We believe it is true to say that the future of clinical research in the country (a core endeavour in building an adequate health system for the population) depends on the MRC's ability to re-focus on this area; to mobilise support and sponsorship at government level as well as from industry; and to lead the kind of concerted programme laid out in the recent ASSAf Report on the 'Revitalisation of clinical Research in South Africa'.

Our interviews with two Deans of health science faculties found them lamenting the shift to drug trials funded by pharmaceutical houses as a default response of academic clinicians to the poor public funding of clinical research. They considered the MRC to have been too passive in addressing this serious systemic problem, to the point where self-initiated clinical research was funded at a completely unviable level. Thus, the total annual MRC investment in clinical research outside the MRC's intramural programme was just under R25 million in 2007-8. It is not surprising that virtually all the MRC's Research Units and Centres based at universities obtained the majority of their funding from non-MRC sources, notably foreign foundations and government agencies; local and international drug houses; and other South African funding agencies such as the National Research Foundation and the South African National Cancer Association.

The Panel supports the ASSAf proposal for a 'National Clinical Scholars Programme', and thinks that the MRC as the national agency holding the stewardship for clinical research should be the prime source and vehicle of the funding of the necessary bursaries and other support. Thought needs to be given to the core systemic role of the PhD degree in research training in the clinical sciences, which should not, however, mean that the career opportunities of clinical specialists who are fully capable of executing and leading research should be diminished or constrained. The MRC also needs to become part of a major coordinated effort to increase employment opportunities in the public and private health delivery systems, industry and academia, to ensure that the momentum is sustained and the valuable fruits harvested.

We also support the creation of a 'National Clinical Research Coordinating Centre' at the MRC to link and coordinate clinical research centres and clinical trial programmes at universities, research councils, government and industry; and to foster collaborative research efforts, training programmes and research projects aimed at strengthening patient-orientated research. This includes helping to remove policy and regulatory 'roadblocks' like inefficient ethical approval systems, multi-layered regulatory authorities, burgeoning patient costs and high (commercial) pathology charges in the public system.

Ultimately, the Panel believes that a system of 'Research for Health' must be nurtured from a clinical core competence and capacity, and the MRC is clearly mandated by Parliament to perform this function within the broader NSI, in which its skills are also needed on a

number of other fronts, notably the 'Farmer to Pharma' ('Bioeconomy') Grand Challenge of the DST's 10-Year Innovation Plan, and the interest of the Department of Trade and Industry ('the DTI') in increasing one of the largest areas of foreign direct investment into the country.

RECOMMENDATIONS

1. The MRC should increase its focus and support of clinical research, and seek additional funds to develop a 'stimulus programme' for clinical research using the momentum afforded by the Report on 'Revitalising Clinical Research in South Africa' by the Academy of Science of South Africa.
2. The 'stimulus programme' should include a broadly conceived 'National Clinical Scholars' Programme' conducted in cooperation with higher education institutions, aimed at increasing flows through the entire clinical researcher 'pipeline', and into receiving career structure and opportunities in both the public and private sectors.
3. A 'National Clinical Research Coordinating Centre' should be established with incorporation of the current MRC proposal to create a 'Clinical Trials Research Initiative'. This should work to remove 'roadblocks' of various kinds that impede clinical research and raise the costs and effort to perform it. Other requirements are a national repository of biomedical samples and a database management centre.
4. Government departments such as the Departments of Health, Science and Technology, and Trade and Industry, should assist in revitalising clinical research in South Africa in a concerted response to the Report by the Academy of Science of South Africa.
5. The overall aim should be to restore South Africa's leading position in clinical research as a key contribution to the solution of many problems in the health care system, and a core component of a national 'bioeconomy'.

BENCHMARKING THE SOUTH AFRICAN MRC AGAINST FOREIGN EXEMPLARS

The Brief of the Review Panel included the benchmarking of the South African MRC against similar institutions elsewhere, in countries with differing degrees of development. We have elected to compare the MRC with its counterparts in the UK (developed country), India (developing country with middle-income features) and Kenya (developing country).

The lessons more-or-less common to all of them:

- There is a broad similarity in the manner whereby the three foreign medical/health research organisations and the South African Medical Research Council are governed and advised, and support extramural research. All but the Kenyan Consortium have extensive intramural research activities. The complexity and scope of each system is roughly proportional to the 'development status' of the country concerned.
- Governance at the top level tends to be multi-stakeholder, including government, business and health service representatives, as well as senior health-science experts of various kinds.
- Extensive use is made of 'Scientific Advisory Committees/Boards', both at the integrative and distributed levels, comprising a variety of senior perspectives in health/medical research.
- The emphasis is on 'medical/health' research, roughly equating to the focus we are suggesting for the South African MRC, as part of a national 'research for health' model (Chapter 2).
- Translation and innovation, as well as ethics functions are delegated to specialist committees.
- Capacity building is a constant refrain, even in advanced economies.
- There is much soul-searching about the balance between intramural and extramural research activities, in the three cases where both are present.
- National 'burdens of disease' and health-risk assessments loom largely in priority-setting agendas.

Some individual lessons are:

- The formalisation and recognition of voluntary peer reviewer roles in a 'college of experts/peer reviewers' based on their track records in both research and review work well-performed (UK);
- Dividing up advisory teams into major areas helps them to achieve focus (UK);
- Having chairpersons of divisional advisory committees sit on the senior policy-making board (UK);
- Appointing retired but capable scientists into 'emeritus positions' (India);
- Awarding research prizes (India); and
- Seeking to create a 'knowledge repository' of health research projects and publications (Kenya).

Most of these ideas have been taken up in our recommendations.

THE SOUTH AFRICAN MRC – THE NEXT FIVE YEARS

Nothing we have found or written in this Report takes away from the fact that the MRC is both a necessary and a valuable national asset. Forty years of relatively small public investment and relatively substantial achievement make that so. Our effort has been to document the present difficulties and lack of cohesion in the organisation that are impairing its functioning and lowering the size and scope of its potential contribution. We have sought throughout to make recommendations that would effectively address these problems and point to a better future.

Our vision is one of a re-focused MRC, with a new Board, a new President, a new Act, and a new Strategic Plan, re-embedded in the comprehensive national effort to create a just and prosperous 'knowledge economy' in which the good health of all its people is prioritised. We recommend that public investment in a newly energised MRC is a wise choice. A dynamic research organisation that determines the most cost-efficient strategies for the promotion of public and personal health and uses resources cost-effectively to grow relevant skills and people, will significantly advance the goal of creating a "developmental state". The greatest benefits will accrue to the country if the MRC's resources are judiciously directed to the country's higher education institutions in the main, and balanced by more restricted investment in a set of well-chosen and –structured intramural units. Few other investments will be able to achieve similar objectives and goals at such a low overall cost. This will not happen if the system is allowed to remain fragmented and the MRC, a high-potential component, continues to be largely side-lined in terms of the major national investments being strategically made by government.

The 'brand' of the MRC is still burning brightly nationally and globally, as demonstrated by its continuing ability to create and sustain partnerships with world-class organisations. But it has come close to losing its shine. Morale at the coalface is perilously low. When the MRC's governors (the Board), the executives (the EMC), internal research leaders (intramural unit directors), external research leaders (extramural unit directors) and young scientists are as much at odds with each other, as is the case currently, all is not well. Great danger is indeed present and lies ahead; and appropriate remedial action is urgently required.

The MRC styles itself as the 'leading health research organisation in Africa'. We think it certainly can be, if the

leadership is revitalised to become effective, willing and determined, the staff is suitably motivated, imaginative and productive, and the state is sufficiently supportive. We hope our Report provides the ideas and indicates the ways to fulfilling the highest of the MRC goals; for turning this temporary pause into productivity; and internal dissension into an escalating future of achievements for the attainment of better health for all.

REPORT

CHAPTER 1:

INTRODUCTION, AND REORGANISING THE BRIEF FOR PURPOSES OF THE REVIEW

The 'Terms of Reference' for the 2010 SETI Review of the South African Medical Research Council (MRC) were jointly prepared by the national Departments of Health (nDoH) and Science and Technology (DST). They required the Review Panel to answer the following questions, based on assembled evidence and a coherent collective view [*Note: The original extended 'Terms of Reference' are provided in Annexure A of this Report*]:

- Is the South African Medical Research Council (MRC) functioning optimally and meeting its current mandate?
- More specifically, is the MRC, given its funding infrastructure and resources, producing outputs to match the resources expended?
- What should the output indicators be?
- Is the (current) mandate of the MRC appropriate for South Africa?
- Is the MRC responding to the needs of South Africa regarding health and medical sciences?
- Did the MRC lead programmes stand up to review?
- How well does the MRC benchmark against similar institutions in upper- and middle- income countries, as well as countries in developing-world circumstances?
- Is the MRC Act of 1991 still appropriate to contemporary South Africa?
- What is the interaction between the MRC and other science councils?
- Is the MRC executive appropriately skilled and structured to ensure an effective institution?
- What is the decision-making framework of the MRC?
- Is the MRC's planning for the future optimal?
- Is the MRC competitive in world terms, given the changing nature of its funding streams and the broader developments within the National System of Innovation (including the cost of research and the demands of its funders)?
- What is the MRC's financial sustainability and the strength of its support services?
- What are the main strengths and weaknesses of the MRC at present?
- What have the main achievements been since the last SETI Review regarding various indicators, including the pace and extent of its transformation?
- What progress has the MRC made in addressing the

issues raised by the previous two Reviews?

- Is the MRC's access to information policy suitable to the South African context?
- What links exist, and how close are these, between the MRC and government in provinces?
- What support does the MRC provide to Research Ethics Committees overseeing health research, especially clinical trials?
- What support/collaboration do academic institutions have with, or receive from, the MRC?

In accordance with the instructions given in the Terms of Reference, the review process included document review at a minimum, comprising:

- The MRC Act No 58 of 1991
- MRC Annual Reports 2004/05 through to 2008/09
- MRC Strategic Plan 2005-2010
- MRC (draft) Business Plan for 2010-2011: two versions (pre-May 2010 and 2 July 2010, respectively)
- 1998 System-Wide Review of Public-Sector SETIs
- 1998 External SETI Review of the MRC
- 2001 External SETI Review of the MRC
- 2006 Internal Review of the MRC
- 2006 Synthesis Review Report on the Science Councils of South Africa

Additional, more systemic documents relevant to the Review were:

- White Paper on Science and Technology, (then) Department of Arts, Culture, Science and Technology (DACST) 1996
- The System-Wide Review of Public sector Science, Engineering and Technology Institutions (SETIs) (DACST) 1998
- South Africa's National Research and Development Strategy, Department of Science and Technology (DST) 2002
- Implementing the New Strategic Management Model for South Africa's Science and Technology System (DST) 2004
- Policy on Governance Standards for Science and Technology Institutions (DST) 2006

[Note: The documents in both of the above groups are not referenced in the body of the Report again.]

The Review Panel took stock of the above-listed questions in the 'Terms of Reference', and decided to re-arrange them in order to facilitate its work and to enable a coherent Report to be drafted. In particular, the questions concerning the MRC's mandate and positioning within the National System of Innovation (NSI) were examined in relation to documentary and oral evidence gathered from many parties throughout the Review process. Other questions concerning governance in the MRC were also aggregated and investigated in the same comprehensive way. The first two chapters of the Report accordingly deal with these two enormously important areas of the Review. Other areas, such as operational matters, output assessment and benchmarking of the MRC in international terms were then assembled to give rise to further chapters in the Report, so that all the questions were eventually covered although obviously not in their original order.

The Panel also examined the recently released Consensus Report of the Academy of Science of South Africa (ASSAf) entitled "The Revitalisation of Clinical Research in South Africa"¹, and interviewed Prof Bongani Mayosi, chairperson of the Panel that wrote the Report. The annual Reports of the CSIR, the NRF and the HSRC were also scrutinised, as well as some of special publications, such as the CSIR's 'ScienceScope' issue of November 2009², devoted entirely to health-related research being done by the CSIR and its partners.

The recently published Lancet series of articles and reviews on 'Health in South Africa' (2009)³ were carefully read in context.

The websites of a number of foreign comparator organisations were scanned for information about these MRC-like bodies, for benchmarking purposes.

A full list of references and other sources consulted by the Review Panel is provided in a separate list at the end of the Report.

The full programme of interviews and visits carried out by the Review Panel is provided in Annexure B. It was unfortunately not possible to conduct site visits, due to time and logistic constraints. Two unscheduled interviews were also conducted, respectively with Prof W van der

Merwe, Dean of the Faculty of Health Sciences at the University of Stellenbosch and current chairperson of the 'Committee of Medical Deans', and Prof M Jacobs, Dean of the Faculty of Health Sciences at the University of Cape Town and a former chairperson of the MRC Board.

The Review process was hampered by the 'lack of status' of the (draft) MRC Business Plan for 2010-2011, a key document for its work, for most of the time that the review was under way. Eventually, a revised Business Plan was generated by the MRC Executive when it had already received the Draft Report of the Review Panel, and had been briefed by the national Department of Health. Not surprisingly, we have noted some (welcome) 'improvements' in the new Plan that appear to be responses to the Draft Report, but in the main these do not deal effectively or at all with most of the problem areas we have identified in this Report.

The Review Panel, appointed in early 2010 by the late Deputy Minister of Health, Dr Molefe Sefularo, was made up of four senior independent experts comprising two South Africans and one each from another African country (Uganda) and an emerging leader in the developing world (India). The two remaining Panellists were appointed as 'representatives' respectively of the national Department of Health and the Department of Science and Technology. They were regarded within the Panel as necessarily serving in their personal capacities, while being usefully able to inform the remaining Panel members of the thinking on certain matters within their home departments. [See full disclaimer printed in bold letters in the Covering Letter.] It is fair to say that all Panel members have sound experience and knowledge of health research and innovation. The Panel members (see biographical details in *Annexure C*) were:

- Prof Wieland Gevers, retired (chairperson) South Africa
- Prof Hoosen Coovadia, retired (deputy chairperson) South Africa
- Dr Rajat Goyal, International Aids Vaccine Institute (IAVI), India
- Prof Nelson K Sewankambo, Makerere University, Uganda
- Prof Gopalan (Nicky) Padayachee, Department of Health, South Africa
- Ms Glaudina Loots, Department of Science and Technology, South Africa

Dr Sibongile Gumbi (see biographical detail in *Annexure C*) assisted the panel with drafting annotating interviews and drafting the Report.

CHAPTER 2:

POSITIONING THE MRC IN THE NATIONAL SYSTEM OF INNOVATION

The Review Panel has had to take account of the salient historical trajectories which have led to the present organisational features and position of the MRC in the country's research system.^{4,5,6} Some of these have been laid down in explicit policy terms, such as the specific mandate contained in the MRC Act of 1991 and an accelerating spate of new national science-and-technology policies and strategies adopted over the last decade, including the concept of a 'National System of Innovation (NSI)' which embraces the idea of a coordinated matrix of differentiated public and private institutions underpinning the way to a prosperous 'knowledge economy' in South Africa.^{7,8,9,10} Others have emerged out of recorded or unrecorded strategic decisions, general developments in the political, intellectual and operating environment, stakeholder-based initiatives and perspectives, changes in the burden of disease, and the impact of enhanced globalisation. These have been highly complex and inter-dependent, and have unfortunately seldom been summarised and analysed in ways that are useful in the specific context of this report.

Our approach in this high-level chapter has been to focus first on the actual trajectory of the MRC itself in the forty years of its existence, and then to embed these in the overall current NSI environment and, crucially, its governance model.

THE PATH TO THE PRESENT

The South African Medical Research Council was created in 1969 out of a pre-existing health-research-focused funding committee of the CSIR. It was modelled on the MRC in the UK, as a pure 'agency-type' body for the coordinated further development of research at the medical faculties of the country's universities. From a small head office which soon moved to Cape Town, it provided a mix of large-scale and longer-term support for research units built around outstanding leaders on their topics of interest; small and shorter-term grants for individuals; and capacity building and facilitation systems mainly comprising bursaries and conference travel awards. The focus of this extramural MRC support was initially on the mechanisms of causation, progression and reversal of common diseases (which were also the pre-occupations of health-professional training at the time), augmented in later decades by the newly evolving disciplines and training fields of public health, primary

health care and health systems.

An early decision to incorporate an entire CSIR Institute (the National Research Institute for Nutritional Disease, NRIND) into the MRC led to the first intramural activities involving researchers employed and hosted by the Council, which opened the way to the creation of a number of other units mainly devoted to systemic service and development activities, such as public health aspects of tuberculosis (TB), environmental and tropical diseases, expensive central facilities such as electron microscopy and medical physics, biostatistics and bioinformation services accompanied by the core development of national epidemiological expertise, as well as laboratory animal services. This was associated with the building and steady expansion of the main MRC campus in Parow Valley in Cape Town, near the then new Tygerberg Hospital, and later to regional facilities in both Durban and Pretoria. The intramural programme expanded over the years as a system devoted to a significant extent to public health research, until the present era where it largely dominates the organisational model and budget of the Council because of its extensive infrastructural, financial, human resource and other operational needs, and its heavy dependence on external grants acquired from both within and outside the country, all coming with stringent regulatory and reporting requirements.

THE MRC NOW: INTRAMURAL AND EXTRAMURAL UNITS

The modern MRC also has within its intramural system significant primary and agency activity in the form of strategic initiatives and innovation in the biomedical/clinical domains. Some of these have grown out of the earlier Nutritional Diseases Institute 'transplant' to the MRC's Cape Town campus (e.g. the Primate Unit) and the other 'service' and cross-system units mentioned above; yet others have been more recently developed in the specific MRC 'Innovation' Centre: one is a cooperative, government- and industry-funded HIV vaccine initiative, and the rest are a mix of initiatives housed in the reorganised Strategic Research Initiatives Programme, with strong international donor/partner involvement and a drug development programme. These constitute an important part of the MRC's current stake in the evolving 'bioeconomy' within the country's overall innovation effort towards a 'knowledge economy', although in

themselves they are but a small part of the total national effort in this area.

The extramural programme of the MRC retains its essential character, covering a wide distribution of fields but comprising virtually all of the Council's 'mechanisms-of-common-diseases' studies, both basic and clinical. As a result of the organisational and budgetary pressure imposed by the intramural programme, most of the substantive enabling support previously provided in the form of formal posts and equipment, especially to the prestigious extramural units, has been progressively diluted down to 'seed funding' for operational costs, short-term assistantships and minor equipment. The typical MRC/university research unit in the early 1990s was awarded between 3 and 6 fully-funded, university-administered senior and other research posts, major equipment and generous operating funds, often constituting the majority of the total funding at the Unit's disposal. In 2010 a typical unit receives funding for one or two assistantships, minor equipment, and some operating funds, covering only about 10-20% of its total research activities. The withdrawal of senior researcher posts, previously funded open-ended for the 5-10, sometimes 15-year lifespan of a unit, is the biggest perceived deficit (apart from the inadequate total quantum) of extramural units *vis-à-vis* intramural units. In effect, the main benefit to unit directors is now their valuable 'MRC Unit branding' (equivalent in the health research domain to the 'A-Rating' of NRF-supported researchers) that enables the acquisition of a large majority of their operating funds from other sources.

Since the host universities of extramural MRC units supply the required infrastructure and organisational backing in the form of financial, human resource, library/information and other services, the overall cost-per-unit to the MRC of the extramural programme is much smaller than that of its intramural programme, and the output in terms of expenditure is generally much greater. Calculations based on recent annual reports and business plans show that the average direct MRC expenditure per published peer-reviewed article in an extramural unit is about R60 000, while that of papers published by an intramural unit is at least six times greater at about R360 000; if the extensive share of the total MRC overhead (perhaps 60-70%) of about R70-80 million that is mostly dedicated to the intramural programme is added, this figure nearly doubles to 10-12 times the average cost of each paper produced by an extramural unit. The average MRC baseline expenditure per postgraduate student graduated in 2008-09 was about R300 000 in extramural units (90 graduates), and R3.4 million in intramural units (26 graduates). It should be noted in this context, however, that the model for

university support by the State is specifically designed for the 'supply-side' provision of infrastructure, setting-up and developmental activity, to enable supplementation, on a competitive basis, by agency funding of the kind provided by the NRF and the MRC. The actual cost to the NSI of the outputs of the MRC's extramural programmes is thus much greater than the cost to the MRC as the agency funder, and may well be on par with those of the MRC's intramural programme.

Most observers and advisors (including SETI Reviewers) in the past, drawing the obvious conclusion of the above analysis, have encouraged the MRC to use the above-mentioned higher education support model to 'stretch' its resources by contracting the intramural programme and enlarging the extramural programme, diminishing the pressure on its own organisation and maximising the outputs per Rand expended. The MRC leadership has been at pains in recent annual reports and business plans to show that its spending on the intramural programme was being progressively reduced in relation to the extramural spend, but the figures adduced have usually referred to trends in operating funds and not total costs, let alone the indirect, but real, costs of the 'overhead'.

In principle, the main argument for establishing and/or retaining intramural units (at their great comparative cost to the MRC in terms of its constrained baseline funding) should be based on the need for responsiveness of the Council to perform health and medical research that is not being spontaneously 'offered' for agency-type funding by well-qualified, externally based academics. Such an example would first need to be tested by an (unsuccessful) call-for-proposals in the area concerned. The particular need could, in theory, also be addressed by recruiting a highly qualified unit director in the field concerned, and requesting an institution to house the relevant unit on mutually acceptable terms; only if this failed would the case for an intramural unit be solid in the systemic environment in which the MRC operates. These kinds of arguments assume that enough of the present extensive MRC investments in land, buildings and tenured staff could be reversed in a time frame that would allow appreciable gains to be harvested in the next five years.

[We will address these issues again in a later section of this Review.]

THE MRC MANDATE

The MRC Act of 1991 still regulates the activities of the Council. The 'Objects' of the MRC are specified to be "through research, development and technology transfer to promote the improvement of the health and the quality of life of the population of the Republic, and to perform

such functions as may be assigned to it under the Act.” It may perform research itself, or on behalf of other bodies or persons, and may support the latter financially in order for them to do so. It must operate national facilities assigned to it by the Minister (first that of Science and Technology, more recently that of Health). A long list of further functions, powers and duties are spelt out following these initial specifications under clause 4 of the Act. The Act may be amended soon to bring it up to date inter alia with new SETI guidelines, the continued development of the NSI and new operating conditions generally. [The present Review will be one of the inputs to able the processes of drafting an Amendment Bill for the MRC; see many other sections of this Report.]

It is instructive at this stage to quote from relevant previous SETI Review documentation concerning the MRC. The 1998 SETI Review recommended that the MRC should “remain an autonomous organisation directly accountable to the people of South Africa through the Department of Health”. It should also change its name to the ‘Health Research Council’ (this idea was not implemented, mainly, apparently, on account of the well-established national and international brand of the organisation; the later National Health Act of 2003 made provision for the establishment of a ‘National Health Research Committee’ which was given effect only in 2007 – *see later.*) The MRC should become the ‘lead agency to facilitate and manage’ an ‘Essential National Health Research’ (ENRH) system in the country. It was also suggested that certain of the health-research agency functions, specifically in respect of proposals “which were likely to benefit from cooperation with a wide variety of disciplines” or were of a ‘blue sky’ nature, should be transferred to the NRF. A crucially important recommendation was that intramural and extramural units should have equal conditions and criteria for financial support and review.

The ‘System-Wide Review’ of public-sector SETIs in 1998 added that the Board of the MRC should “clearly delimit the areas of research which should be performed in-house, and should encourage, and be sensitive to, public debate about such decisions.”

The more recent (2006) ‘Synthesis Review Report of the Science Councils of South Africa’ noted the continuing discrepancy between the mandate of the MRC and its name, which it thought arose mainly from the expansion of the MRC’s traditional focus on ‘medical research’ to ‘health and development, public health policy and social aspects of disease’. Potential overlap between some HSRC programmes and those of the MRC in similar areas was pointed out, and ‘role clarification’ recommended,

plus the adoption of suitable coordination mechanisms. At the systemic level of the NSI, the 2007 OECD Review of Innovation policy in South Africa stated that “the MRC aims to increase the clarity of its role as a promoter and strategic planner for (health) research, as a professional support organisation and as translator of research into practice through improved information and stakeholder links.....completing the transition from research performer to research funding agency”.¹¹

Lastly, we might note that a former President of the MRC expressed a personal, but very clear, view of the remit of the MRC: “Medical research is about basic fundamental issues in disease, not documentation, and research is about quality, not quantity”.⁴ He went on to say that the goals of the MRC should be:

- to assume leadership in the planning and execution of health and medical research;
- to facilitate and co-ordinate health and medical research;
- to serve as the interface for the flow of information among policy makers, health services, industry, funders and research structures; and
- to develop the highest quality of human capacity in health and medical research.

A NEW CONCEPTUAL FRAMEWORK: ‘RESEARCH FOR HEALTH’

These rather contrasting prescriptions raise a deep question of great importance to this Review: what is the difference between ‘health research’ (or ‘health and medical research’, the phrase used by Makgoba in the quotation above), on the one hand, and the much more current and widely accepted concept of ‘Research for Health’, on the other.^{12,13} The MRC, by virtue of its Act, is well placed in an NSI framework model in which it is mandated, without the possibility of challenge, to lead in, and help perform a significant part of, ‘health and medical research’. [The NRF has for years recognised this primacy by referring all applications that it considered to fall into this sphere, to the MRC.] This particular sphere is in fact sufficiently important in the wide spectrum of ‘Research for Health’ (which makes up ALL the enquiries needed in many domains to promote the health of the whole population) to justify having a Science Council or SETI such as the MRC contributing extensively to the stewardship of its national development, embedded in an NSI in which the full spectrum of needed enquiry is covered by a variety of organisations and institutions well-networked through effective planning, coordination and collaboration.

The simple fact is that human health is impacted by many factors in the society and environment, and many organisations legitimately regard it as part of their mandate to address these factors in order to help improve the health of the population. The Review Panel is of the unanimous view that the concept of national 'Research for Health' is the most powerful guiding principle for addressing organisational issues in the NSI (and incidentally for framing our recommendations throughout this Report), and should replace its earlier formulation as 'Essential National Health Research'.

Acceptance of the 'Research for Health' paradigm could also help us to both justify the continued existence of the MRC, and to sharpen the focus on what should be its 'core business'. It could mean that investigation of basic mechanisms of disease or ill-health, including the search for preventive strategies and effective therapies, should be regarded as central to the MRC's focus, whether they be in the bio-pathological, psycho-pathological or socio-pathological sub-domains of 'health and medical research'. This is an area in which innovation and translation is of the essence, with countless opportunities for research impacts through better practices and new products, for both human and 'animal' health, in agriculture and conservation, etc. The new MRC Act might well incorporate this clearer definition of the MRC mandate, replacing the unclear, ambiguous and unattainable (in the context of a widely distributed 'Research for Health' platform in the NSI) present wording of "research, development and technology transfer..... to promote the improvement of health and quality of life of the population".

THE BASIC ORGANISATIONAL ISSUES

It is now time to engage with a number of other basic issues which in 2010-2015 will have a bearing on the positioning of the MRC as a 'public entity', 'public research enterprise' and SETI in the South African NSI. We have in particular to consider the following questions:

- Is the national Department of Health (nDoH) the most appropriate sole reporting body for an MRC primarily committed to 'health and medical research' (including an extensive domain of innovation), given its own necessary focus on the challenging practical matters involved in the equitable delivery of promotive, preventive and therapeutic health care to the country's population of 46 million people (vividly illustrated by the recent Lancet series on 'Health in South Africa')³ ?
- Does the recent track record of the national Department of Health in its sole stewardship of the MRC inspire confidence in the wisdom of a 'yes' answer to the first question above?
- How can the mandate of the MRC properly be met, as

a SETI focused on 'health and medical research' that is simultaneously required to contribute significantly to the national agenda of creating a 'knowledge economy' across all sectors AND responsively to assist the national and provincial departments of health through effective research in its mandated sphere?

- Why should the Human Sciences Research Council (HSRC) report to the DST if the MRC doesn't?
- Should the reporting line of the MRC perhaps be to the Department of Science and Technology (DST), or should there be a differentiated, double ('Caesar and God') reporting line to both the nDoH and the DST?
- Current policies concerning the integrative role of the DST in promoting national "R&D" across line departments and achieving the creation of a 'knowledge economy', require effective linkages and collaboration between the DST and the nDoH, for the effective integration of a 'Research for Health' agenda, but how well has this worked so far ?
- Can the proper development of the statutory National Health Research
- Committee (NHRC) within the nDoH assist in facilitating these matters? Should there be an analogous body in the DST?

THE PROBLEMATIC PRESENT LINE TO GOVERNMENT

Answering these inter-dependent questions requires the sensitive and diplomatic expression of the Review Panel's concern that the nDoH has apparently so far been able to interest itself, and to a limited extent, only in the direct 'public health/ health systems' activities of the MRC, approximating to a significant segment (but by no means the whole) of the intramural programme of the Council. It appears also to accord equal credit in this respect to the work of the HSRC. Further evidence for this view comes inter alia from:

- the omission of any reference to the MRC in the reference to 'Strengthening Research and Development' (last item in the 10-point Plan for the Health Sector) in the Department's 3-year Strategic Plan;
- the absence during the long period since 1991 of any effort to promulgate operationally essential Regulations under the MRC Act (see Chapter 3);
- the long gap, attributed to delays in departmental processing and approvals, between the last external SETI Review of the MRC conducted in 2001, and the present one finally conducted in 2010 after considerable departmental difficulties and participant frustration in the setting-up stages;
- the lack of leadership and momentum in the nDoH in respect of the task of establishing the National Health Research Committee (NHRC) as a statutory link inter

- alia to the MRC;
- the apparent inability of the nDoH to make successful representations to the National Treasury for the improvement of the MRC's baseline funding, or for the inclusion of the MRC in the Cabinet-supported stimulus programmes for science and technology;
- a number of remarks made by nDoH officials in Panel interviews as to the lack of relevance of the MRC's work to the Department;
- poorly functioning communication lines (including those between the Minister of Health and the Council's Board chairperson (see Chapter 3);
- late replacement of the nDoH representative on the MRC Board after her resignation (see Chapter 3); and the separation in the organogram within the nDoH of responsibility for public entities (including the MRC and the National Health Laboratory Services (NHLS)) from that for the cluster of 'Health Information, Epidemiology, Evaluation and Research' responsible inter alia for the NHRC (which may explain the poorly supported start of the NHRC within the Department, despite the Committee's statutory mandate to coordinate health research in the country, starting with the that of the MRC.).

We acknowledge that some of these deficits are not necessarily permanent, and are being operationally addressed in various ways, but the track record and the serious mismatch between the structural arrangements and the broader statutory and national SETI-type mandate of the MRC speak clearly against the continuation of a single reporting line between the MRC and the nDoH.

THE SIGNIFICANCE OF THE 'RESEARCH FOR HEALTH' PRINCIPLE

In this context, it must again be emphasised that the actual scope of the 'Research for Health' needed by the nDoH for delivery of its health-care mandate extends far beyond that which the MRC can possibly deliver, which is why organisations not reporting to it, such as the CSIR and the HSRC, are performing a great deal of such research, the NRF is providing an estimated 15% of its extensive agency funding for health-related research, and an enormous amount of HIV and TB research, extending across the basic, clinical, human/social and innovation spectrum, is currently organised on university campuses as a result of foreign investment by the Wellcome Trust, the Howard Hughes Medical Institute (HHMI) and the US National Institutes of Health (NIH), only loosely connected to the MRC's unit system. Some of the work done by the Agricultural Research Council (ARC), the Water Research Commission (WRC) and other non-governmental bodies such as the Health Systems Trust (HST) are also important components of national 'Research for Health'. The NHRC

was built into the National Health Act of 2003 precisely to help the nDoH to 'make sense' of all this activity in terms of both needs analysis (research priorities) and channelling as much of it as possible into usefulness to the Department.

Associated with the above issues is the question that must be put as to the ability of the MRC (in its current organisational model of reporting solely to the national Department of Health) to capitalise on the remarkable progress made by the DST in persuading the Cabinet and the National Treasury to invest increasingly heavily in 'Science and Technology' (S&T) as part of the country's overall developmental strategy towards a 'knowledge economy'. Because S&T development is at the top of its priorities, the SETIs which report to the DST (like the CSIR and the HSRC) have benefited directly from being part of this well-managed stimulus, while the NRF has been the DST-reporting agency that has distributed research chairs, centres of excellence and major equipment to researchers to many universities, some in the health/clinical area but certainly not an appropriate share for this very significant sector.

The DST has a sub-programme of 'Biotechnology and Health' in its Programme of Research, Development and Innovation, which already manages and coordinates a number of health research initiatives shared by many of the organisations mentioned above, in the context of its own Strategic and Business Plans and Cabinet-approved R&D Strategy, 10-year Innovation Plan, Guidelines for SETIs, etc. Most of these initiatives have advisory boards comprising experts from outside the DST, but there is no single advisory body that coordinates and integrates them, analogously to the envisaged functioning of the NHRC within the nDoH.

THE BEST WAY FORWARD

The inescapable conclusion from the above analysis is that the nDoH requires support for its national health-care delivery functions through 'Research for Health' performed not only by the MRC but by higher education institutions, the HSRC, the CSIR, the ARC, the WRC, the HST and other organisations.

In this context, it is significant that a mechanism within the nDoH is currently missing for effective communication of needs to the performers and coordinators of this aggregate, national 'Research for Health', and for collection and channelling of its useful outputs. The NHRC is well-placed in terms of the 2003 National Health Act to function as the expert, external advisory body the nDoH

needs to assist its line structures to make use of research outputs from ALL sources in the country that are engaged in 'Research for Health', to assist the Department in devising strategies, making policy, improving practice, and disseminating information within the national health system and especially its provincial health departments and delivery agents at local government level. (This would obviously require recognition of the increased logistic and moral support required by this fledgling Committee.)

Despite the strong statement in the SETI Review Report of 1998 that the MRC 'should remain an autonomous organisation directly accountable to the people of South Africa through the Department of Health', the Review Panel believes that the nDoH has not been able or willing energetically to oversee, promote and build a stronger, statutory mandate-driven MRC in the twelve years since that recommendation was made (see above). Apart from the (remediable) structural reasons for this already mentioned above, the persistent 'distance' between the nDoH and the MRC as organisations can be ascribed to the fact that only a small part of the MRC's portfolio of 'health and medical research' has been of real interest to the Department in the immediate sense, and that other organisations like the HSRC and the CSIR have been freely generating outputs of equal interest to the Department.

We therefore recommend that the MRC should move to the DST in terms of its 'solid' reporting line, as has been and is still the case for both the presently flourishing HSRC and CSIR.* This will enable the nDoH to draw on the entire NSI for relevant outputs of national 'Research for Health', irrespective of its origin, and remove a responsibility that has had a low priority in the pressurised agenda of the Department. At the same time, the move would enable the key R&D sector of 'health and medical research', as defined by Makgoba a decade ago and entrusted by Parliament to the MRC for leadership and agency, to become fully embedded in the 'bioeconomy' and 'knowledge economy' strategies and plans of the DST and the Cabinet. Both the MRC's (expanded) agency-type extramural functions and its (reorganised) intramural functions (and especially the key area of innovation) would also be enabled to benefit fully and equally from the major stimulus packages represented inter alia by the research chairs, centres of excellence and equipment initiatives of the DST.

The Panel is aware of the approach adopted in the 'New Strategic Management Model' (NSMM) of the government in 2004 towards the classification of Research and Development (R&D) activities into those which are 'early-stage' and/or 'cross-cutting', those that

are 'sector-specific', and those that are sector-specific but in the nature of being largely 'routine technology-intensive services', with the organisational consequence of placing the first of these under the DST, and the other two under the line departments responsible for the sectors concerned. It is important to note that this was not an institutional but an activities classification, and individual organisations were acknowledged to have varying mixes of the three types of activities. Science councils such as the CSIR, NRF, HSRC and Africa Institute of South Africa (AISA) were adjudged to have a majority of 'early-stage and/or cross-cutting' activities, and remained the responsibility of the DST. Identification of the MRC as having a majority of 'sector-specific' activities placed it within the responsibility area of the national Department of Health, together with a number of service-dedicated public entities that fell in the third category. Its content agenda was intended to be "driven by the needs of the sector", and 'embedded in a shareholder contract' with the nDoH, which now provided the baseline budget of the organisation.

The NSMM importantly made provision for interventions by the DST in cases of 'market failure' and/or identified wide gaps that remained unfilled by the line department under the arrangement, or where such departments were "not ready to drive the relevant sector-specific technology programmes due to capacity deficiencies".

The Review Panel believes that the unsatisfactory above-described position of the MRC vis-à-vis the nDoH (which we suspect may also be true for some other sector-specific research councils) is a mixture of all the above kinds of problems plus additional factors that have arisen in the context of the specific situation on the ground in respect of the general crisis in public health-care provision in the country, and the strong belief of government that its core developmental approach should be based on the generation of a 'knowledge economy'. It is in these contexts that our recommendation of re-positioning the MRC in the NSI under the DST as a research council with a majority of 'early-stage and/or cross-cutting' activities makes good sense in our considered view.

We also think that some of the assumptions of the NSMM may have to be re-examined in the light of the experience since 2004 across the system, and the aspiration of a 'knowledge society' in a developmental state.

The Panel believes that the DST will need to strengthen its own expert, external advisory function in order to optimise its ability to coordinate and stimulate the activities in the health-related domain of the evolving 'bioeconomy'

* Footnote: Prof G Padayachee's dissent from this recommendation is here recorded.

component of the national 'knowledge economy', by creating the equivalent of the NHRC in its Biotechnology and Health sub-programme, but with a different set of skills and perspectives (and some cross-representation with the NHRC, preferably at chairperson or deputy level.)

The Review Panel recommends that the best way to populate these two advisory bodies is to issue a general call for nominations including self-nominations, and to pick out of these people those who provide a wide range of perspectives and experience, promoting gender and race representivity and affirmation in favour of energy, vision and 'high-flier' potential, in younger rather than older people if necessary.

The MRC in this new model would be expected to draw not only on the strategic and business plans of the DST, but also on those of the nDoH and other relevant line departments, in drawing up its own strategies and business plans, focused, however, on its core mandate for 'health and medical research'.

The MRC as an autonomous SETI accountable to Parliament through the DST would, like the HSRC and the CSIR, retain its valuable brand, its momentum with respect to agency in specific core health research activities such as biomedical, clinical and related research (see other parts of this Report), and its focused role in supporting leading performers of 'health and medical research' throughout the country. Its functionality in this respect would in fact be considerably enhanced by the proposed linkages to the 'coordinating and channelling' functions of the NHRC in the nDoH and to the proposed equivalent advisory Committee in the DST (see above). The involvement of the country's leading experts in these advisory bodies would greatly strengthen the evidence base of decision- and policy-making for health, and assist both the nDoH and the DST in overcoming the kinds of 'turf' issues that commonly impair functionality in government

THE UNWORKABILITY OF OTHER POSSIBLE NEW ORGANISATIONAL MODELS

The Panel has striven to design other reporting models that would leave in place the present 'solid line' of the MRC to the nDoH combined with a 'solid but dotted line' to the DST. These models unfortunately all fall down because they carry little conviction of early gains in strengthening the MRC because of the many factors rendering it unlikely that the otherwise heavily pre-occupied nDoH can improve its stewardship of the MRC;

because they leave the MRC isolated as a 'struggler' in the NSI; because they maintain the present depressed state of clinical research; and, perhaps most important and most strikingly, because they deprive the nDoH of the full benefits of the concept of 'Research for Health', in which evidence-based solutions to health problems are drawn from all parts of the NSI.

The Review Panel is acutely aware of the differing perspectives and vested interests involved in the complex and disputed terrain of the MRC's reporting line and general relationship to other elements of the NSI in South Africa. It has received a variety of differing inputs and opinions about these all-important matters. It has reflected deeply on all that it has read and been told. It believes that the time has come to set aside the thick welter of accumulated 'cobwebs' and 'red herrings' that have clouded the debate for over a decade, and move forward in the interest of the country's overall prosperity and the health of its citizens.

RECOMMENDATIONS

1. South Africa (and by extension the national Department of Health) should adopt the broad organising principle of 'Research for Health' in its approach to the mobilisation of new knowledge in the support of health promotion and health-care provision.
2. The MRC should move to the DST in terms of its government stewardship, as an organisation with a majority of 'early-stage and/or cross-cutting' research activities, to ensure its full inclusion in the evolving national 'knowledge society', as a science council mandated to contribute significantly to the total array of 'Research for Health' efforts in the country. This change should be incorporated into, and elaborated in, an amended MRC Bill to be put to Parliament in 2011.*
3. The National Health Research Committee in the national Department of Health should be strengthened to fulfil the key function of scanning 'Research for Health' activity throughout the National System of Innovation, including that performed on a large scale by the MRC, in order to help coordinate the system responsively to needs, and to channel useful outputs into the health services generally.
4. A body analogous to the National Health Research Committee should be established in the DST to help stimulate and coordinate 'Research for Health' programmes throughout the National System of Innovation, in close liaison with the reorganised and properly empowered National Health Research Committee.

* Footnote: Prof G Padayachee's dissent from this recommendation is here recorded.

CHAPTER 3:

GOVERNANCE ISSUES IN THE MRC

A NEW MRC AMENDMENT BILL IN 2011?

The Panel was belatedly given sight of a draft Amendment Bill dated 2006, intended to update or replace the (by now 20-year old) MRC Act No 58 of 1991, that has apparently been in preparation for some time in the Department of Health. We have noted the main amendment proposals contained in this version, notably:

- The specification of “‘essential national health research’ as an integrated strategy determined by the Minister, after consultation with the NHRC.....for organising and managing health-related research..... to promote health and development in a manner that is just and equitable, and to enable the State to fulfil its constitutional obligations concerning health care services.” (See *Chapter 2* of this Report)
- The definition of the MRC as a national public entity in terms of the Public Finance Management Act (PFMA)
- A specific mandate to build capacity at historically disadvantaged institutions in health research
- The MRC Board to be the ‘accounting officer’ under the PFMA
- MRC Board membership to last 5 years, renewable once
- Removal of the requirement for the MRC President to be registered as a medical practitioner
- An annual performance review of the MRC by the Board.

As the MRC Act of 1991 has not been amended to date, the Panel has had to use the existing Act to guide its assessment of the current governance function in the MRC. The Act under its clause 18 makes provision for the making of “Regulations’ by the responsible Minister; we were unable to establish whether any such Regulations have in fact been issued (and not subsequently revoked) during the period 1991-2010, and, if so, to have sight of them. The panel was also subsequently informed that the tabling of the draft Amendment Bill would most probably take place in 2011.

THE MRC ACT NO 58 OF 1991

The 1991 MRC Act is strangely silent on important matters such as the manner of appointment of the Chairperson and of 12-14 other members of the Board who shall

have ‘distinguished themselves in any branch of the (sic) medical or related science”, but does clearly specify that up to two other members shall be appointed by the Minister (clause 6(2)), who shall also appoint a vice-chairperson (clause 8(a)). We believe these shortcomings need to be rectified in law sooner rather than later, as they contribute to problems we will be addressing further in this section.

AN INTERFACE WITH SYSTEMIC GOVERNANCE STANDARDS FOR SETIs

The ‘Policy on Governance Standards for Science, Engineering and Technology Institutions’ issued by the DST in 2006, arose from the adoption by the Cabinet of the 2002 ‘National R&D Strategy’ and its resulting mandate to implement a new, also Cabinet-approved ‘Strategic Management Model’ for the public research institutions of the NSI (August 2004). We have to assume that the governance policy standards were generally agreed to by the departments with responsibility for identified SETIs, and that the nDoH did so too in respect of the MRC. The Policy document states that “SETIs and their Boards will be required to give effect to this Policy in relation to all other Statutes, Regulations and other authoritative directives regulating their conduct and operations with a view to applying not only the most applicable requirements, but also to adhere to the best available practice that may be relevant to the SETIs in their particular circumstances.” The policy did not cover in any detail also-applicable laws (such as the Public Finance Management Act, PFMA) and related Treasury Regulations, policy guides or protocols such as those for appointing persons to boards of public sector institutions (Department of Public Affairs and Administration) and for corporate governance (Department of Public Enterprises), and the relevant individual Acts of the SETIs concerned.

An important component of the ‘Policy on Governance Standards’ is institutional performance management, to which the prescribed key performance indicator framework is pivotal, together with the requirement for periodic (3-5-yearly) external institutional reviews (‘SETI Reviews’) managed by the SETIs themselves, with board-approved terms of reference developed by the SETI in consultation with its reporting department and also approved by the relevant Director-General. [Note: The Review Panel is not able to explain why in the present case this approach to development of its terms of

reference was apparently not followed.]

Returning to the issue of the (legally under-specified in the case of the MRC, as pointed out above) mechanism of board appointments, the 'Policy on Governance Standards' states clearly (under 'Institutional Mechanisms': point 2.1.1) that 'the Board is appointed by the Minister responsible for the enabling legislation of the SETI with the approval of Cabinet'. The Review Panel has no choice other than to assume that this is the way in which the new MRC Board will shortly be appointed, although much necessary and important detail (such as one might have thought would have been captured in Ministerial Regulations issued under clause 19 of the MRC Act and brought to concordance with the 'Policy on Governance Standards') has been hidden from our view. A new MRC Board in 2010?

The present MRC Board is coming to the end of its 3-year term soon. As mentioned above, the processes to be followed for new appointments and/or re-appointments of most of the Board members are not specified either in the MRC Act or in any Regulations, but are internal to the nDoH as (probably) influenced by the DST 'Policy on Governance Standards' for SETIs. Our recommendations for the appointment of the new Board (see below) are naturally dependent on clarification concerning the presently intended processes, and the assumption that our suggestions may be amenable to actual adoption on this occasion, in part or whole.

The MRC Act in clause 6(1) states that the "affairs of the MRC shall be managed by (the) Board which shall, subject to the provisions of the Act, determine the policy and objectives of the MRC and exercise control generally over the performance of its functions, the exercise of its powers and the execution of its duties". The Board appoints the MRC President/Chief Executive Officer (CEO), may 'nominate' ad hoc or standing committees (clause 8), and may delegate certain functions in specified ways (clause 19). The Board may also, under clause 7, appoint an Executive Management Committee (EMC) chaired by the President, which shall be "responsible for the management of the affairs of the MRC in accordance with its objects and policy".

MORE DETAIL ON THE 'GOVERNANCE STANDARDS' FOR ALL SETIs

The 2006 DST 'Policy on Governance Standards' provides an updated (relative to the 1991 MRC Act) version of prescribed board governance of a SETI like the MRC, under points 2.1.2 up to 2.1.18, quoted here in full because of its relevance to our assessment (henceforth referred to as GovStds 2-18 for reference):

1. The Board is the focal point of good governance in the SETI. It is ultimately accountable and responsible for the performance and affairs of the SETI. Delegating authority to Board committees or management does not in any way mitigate or dissipate the discharge by the Board and its members of their duties and responsibilities.
2. The Board must give effect to the mandate, objects and purpose of the SETI with regard to the resources and instruments available.
3. The Board shall have in place a Shareholder Compact with the Minister that complies with the requirements of the Minister.
4. The Board must approve the strategy to achieve the SETI's purpose and facilitate the implementation of the SETI's values in order to ensure that it survives and thrives.
5. The Board must retain full and effective control over the SETI, and monitor and evaluate management in their implementation of Board-approved plans, policies, business plans, management performance criteria and strategies.
6. The Board must ensure that there are procedures and practices in place that protect the SETI's assets and reputation.
7. The Board must ensure that the SETI has in place mechanisms to comply with all laws, relevant regulations and applicable codes of business practice and ensure that codes of conduct, integrity of systems and controls and disciplinary mechanisms offer a buffer against failure in this regard.
8. The Board must, in concurrence with the relevant Minister, appoint the chief executive officer (CEO) of the SETI.
9. The Board must define levels of materiality, reserving specific power to itself and delegating other matters with necessary written authority to management. These matters should be monitored and evaluated by the Board on a regular basis.
10. The SETI must make information, records, documents and property pertaining to it accessible to its Board members provided no conflict of interest is involved.
11. The Board must have a charter setting out its responsibilities, which should be disclosed in its annual report. At a minimum, the charter should confirm the Board's responsibilities for the adoption of strategic plans, monitoring of operational performance and management, and determination of policy and processes to ensure the integrity of the SETI's risk management and internal controls, communications policy, orientation and evaluation.
12. The Board must regularly assess its performance and effectiveness as a whole, as well as that

of individual Board members, including the performance of the CEO. The chairperson of the Board must submit these performance reports to the Minister on an annual basis.

13. The Board must ensure that the SETI has developed a succession plan for its senior management.
14. The Board should ensure that the technology and systems used in the SETI are adequate to run the institution properly and for it to operate through the efficient use of its assets, processes and human resources.
15. The Board must approve the annual Key Performance Indicator Report before submission to the DST on or before the 31st of July every year.
16. The Board must ensure that the SETI conducts an independent institutional review using a method approved by the DST and with a panel mutually acceptable to the DST and the institution, in a published cycle preferably every three years, but no longer than every fifth year.
17. The Chairperson of the Board should meet with the Minister at least twice a year to update the latter on the progress of the SETI in fulfilling its strategic plan and Shareholder Compact.

The Review Panel has no choice other than to assume that these prescriptions have been agreed to by both the nDoH and the MRC Board(s) that have held office since 2006. In this context, we have not had sight of any 'Shareholder compact' between the present MRC Board and the Minister of Health (Govstds 4), nor of a board 'charter' setting out its responsibilities (Govstds 12). Such documents are obviously urgently required. There also appears to be an absence (or perhaps inadequacy) of the requisite 'Board Secretary' (Governance standards, point 2.7)), which renders difficult the resolution of issues concerning the correct minuting of Board decisions, and of Board operations generally (see below).

VIEWPOINTS OF THE CURRENT MRC BOARD'S EXECUTIVE COMMITTEE (BOARD EXCO)

The Panel interviewed the Chairperson of the Board in the presence of the other members of her Executive Committee (Board Exco), comprising the Deputy Chairperson and other chairs of Board committees. We did not have access to any Board documents such as agendas and minutes of Board or Committee meetings, but did have sight of variably short 'biosketches' of each Board member, and of the self-assessment performed in 2006 by the then chairperson of the Board.

In our interview, we covered ground such as whether

high-level deliberations on the MRC's functioning were conducted by the Board (the Board has in fact debated as to 'whether the MRC was still relevant and was conducting responsive research or whether it should focus elsewhere'), governance issues such as whether the Board was suitably structured in order to meet the requirements of the PFMA or the third set of King recommendations on corporate governance ('King III') (help is needed, and has been provided via the agency of the MRC Executive Management Committee (EMC) through induction processes, training on risk management and familiarisation with the King III recommendations for good corporate governance), as well as the recruitment of outside experts onto Board Committees (done at the Board's discretion, without public calls for participation.)

The Board Executive Committee (Board Exco) members are of the opinion that they are constituted more as a 'scientific management body' than as a 'board of directors', most of them being much weaker on the corporate management side of their responsibilities than in the other respect. Apart from induction and specific training, they frequently seek (buy) advice or consultancy from outside firms on matters such as labour relations, governance and some aspects of financial reporting. Even in their more comfortable domain of 'scientific management', and taking account of the range of perspectives they represent, the board members are not in a position readily to deal with other NSI stakeholders such as the National Research Foundation (NRF), the CSIR, the HSRC, the DST and the nDoH itself.

The chairperson has sought a meeting with the Minister of Health and his Director-General in the past year but this did not in fact take place because of postponements requested by these officials. She had put a number of matters on the agenda, including the issue of research direction within the MRC vis-à-vis funding and relevance; governance issues; the MRC Act and concerns over the Act; and the need to introduce the Board to the new administration in the Ministry and Department. She admits that her decision last year not to interact with the National Health Research Committee (NHRC) in the nDoH was mistaken, but she had been unsure of the authority vested in that new body by its host Department; she now thinks the NHRC may well become more important and helpful in the system if its role is clarified and its operational position actively strengthened by the Department.

The Board Exco believes that the apparent failure to arrange the required 3-5 yearly SETI Reviews since 2001 was caused by lack of the necessary nDoH cooperation rather than by Board or EMC neglect.

Generally, the Board Exco wishes to leave it to the President and/or members of his EMC to carry out strategic discussions with government departments or public entities, etc. and to make well-motivated and -documented proposals to the Board. This also applies to the high-level question as the overall baseline funding level of the MRC. The Board is aware that the National Treasury is extremely unlikely to provide increased baseline funding if it believes that internal adjustments to free up money for core activities have not been made, and is aware that opportunities for doing precisely this still have to be grasped. The intention had been to achieve some of this in the 2010-2011 MRC Business Plan, but time had apparently been too short to do this.

The Review Panel identified as a key Committee of the Board that on 'Research and Development'. The committee core of three board members has recently been augmented by the ad hoc appointment of four other 'experts' in order to address major issues such as the scale and direction of the intramural programmes, the situation of the extramural units, and the levels of funding in relation to administrative costs. The terms of reference have recently been modified for this advisory Committee (not shown to the Review Panel). Our impression is that this mechanism for strengthening the strategic thinking of the Board, while praiseworthy, is not a substitute for more organic and wider strategic deliberations on research policy and practice, inside and outside the organisation (see further discussion and recommendations below).

The Board Exco considers the recently established (intramural) 'Unit Directors' Forum' ('UDF') as a potentially useful consultative body, but feels that the locus for its interactions and strategic contributions should be the EMC. The Board does not favour a matrix of interactions other than its functional link to the EMC.

As evidence of pro-active Board action, we were given examples of where the Board has overruled EMC proposals (such as the idea of expanding the physical plant in the crowded MRC's regional branch in Durban), has questioned the EMC's general approach to prioritisation, and has challenged the EMC to lower the burden of administrative costs in the organisation. The Board has tried to maximise grant-making, to increase provision for capacity building, strengthen financial leadership, and improve linkages with other bodies in the NSI. The Board is concerned about the dependence of many of the MRC research units on external funders, and the possible distorting effects this might have on the internal agenda.

The Board wishes to see the MRC as a 'first port of call' for the addressing and possible solution of national health problems through research. It recognises that other bodies in the NSI have a considerable 'slice of the action', such as the HSRC, the CSIR, the universities and international organisations interested in assisting the country in dealing with major health problems such as pandemics, etc., but the MRC should never be 'side-lined' in playing its major part. It wishes the MRC research programme, both intra- and extramural, to be closely aligned with national health priorities and disease burdens in general. It is in favour of a significant role of the MRC in innovation, both because this is a statutory mandate and because the burden of disease can be lowered in this way. The Technology Innovation Agency (TIA) is seen as a welcome addition to the landscape and should be linked to MRC activities. Public-private partnerships are a good idea.

The Board Exco is in favour of increased cohesion in the NSI, which the MRC is seen to be enhancing through its expanding set of Collaborative Research Programmes. The Board is not sure how it can assist in the embedding of MRC initiatives in the wider sphere, as it does not itself engage at this level.

The Board Exco wants more effective review of clinical trials, and better compliance with regulations set by the National Health Research Ethics Council (NHREC). A more structured secretariat is required, and the EMC has been requested to prepare plans to assist the secretariat in this regard.

EVALUATION OF FUNCTIONS

On the question of quality assurance, the Board Exco is not satisfied that the evaluation of units is effective against a background of severely constrained resources and the continuing need for the re-setting of priorities; it has in some cases refused to accept EMC recommendations in this regard. The matter is often mixed up with intractable personality, human resource, space and equipment issues. Possibilities for new initiatives, mergers and redeployments need to be looked at carefully in such cases, but this in its view has not been happening. The Board Exco wishes to re-focus on research, with far-reaching implications for all aspects of the MRC's strategies, core business, relationships, etc. The MRC should be a hub, with 'spokes of service' being conducted elsewhere, but facilitated by the MRC.

Questioned on the requirement for review of the Board itself (Govstds 13), the Board Exco referred to the self-

evaluation submitted to the nDoH by the previous Board, to which no reply or comment had been received. No external assessment of the members of the present Board has been done or was contemplated.

TENSIONS INVOLVING THE MRC BOARD

The Review Panel has been made aware of a pending court case in which the (intramural) Unit Directors are suing the MRC in the matter of a number of decisions made by the Board (of which some had apparently already been reversed). It did not have the opportunity to acquire details of this case (nor did it wish to become embroiled sub judice), but the mere fact that this has happened is significant, and points to poor communication and/or consultation/and/or decision-making in the MRC governance system.

Another source of tension between the Board and the EMC is the unilateral decision to requisition a forensic audit of certain MRC sections made by the Board in the last year (the Chairperson was made aware of the reasons for this step well after the Panel had completed all its interviews and documentary surveys, but decided not to inform the other members of the Panel, as the matter is in the hands of the MRC Board.). A key problem seems to be the manner and extent of delegation(s) of authority and powers from the Board to the MRC President and the Executive in general. The amendments to the MRC Act will have to be much clearer about this problematic aspect of overall governance in the MRC as a SETI/science council.

The Exco of the Board admits to a poor relationship of the Board as a whole with the EMC, or at least one that needs significant improvement. Part of the reason for this appears to be that the vision of the EMC for the MRC is not clear to the Board, while the Board is trying to get the EMC to move from current practice to the Board's vision of where the MRC should be.

The view of the MRC board Exco on the question of a new President for the MRC is that a 'strong appointment' is absolutely necessary, in terms of both scientific stature and leadership qualities. The requirement in the 1991 Act for a medically qualified MRC President is a problem in that it limits the field of possible good candidates.

The Board Exco finally ranks the following matters as important in its aspirations for the MRC:

1. A better working relationship between the Board/ Board Exco and EMC to be achieved.

2. The 'core business' of the MRC to be fore-grounded, with an emphasis on useful health research.
3. Collaborative research to be increased.
4. A good two-way working relationship to be effected with the key line ministries, the nDoH and the DST.
5. Management structures in the MRC to be able better to respond to the organisation's needs.

VIEWPOINTS ABOUT THE BOARD IN EXECUTIVE MANAGEMENT

The (Acting) President of the MRC (who may or may not remain in office as such until the new President arrives) and the Executive Management Committee (EMC), of which he is the (acting) chairperson, believe that tension in the relationship between the Board and the EMC arose during the term of the previous President, and considers it to be concerned not so much with research policy as with operational issues, performance assessment, and other matters. The problem amounts to a perception of inappropriate micromanagement of some MRC affairs by the Board, not necessarily in bad faith, but possibly arising from factors such as differences in the interpretation of roles and lack of a common vision. The tension between the 'pure corporate governance' and 'leadership in research strategy' roles of the Board is palpable, much of it embedded in the literal provisions of the MRC Act, and impairs the effectiveness of both aspects of their functioning. This is the case despite the provision of induction sessions and professional/legal consultancy (for example in King III governance principles) for new members of the present Board, and the setting up of the extended 'Research and Development Committee' by the Board.

The (informal but sensible) tradition of seeking continuity on successive MRC Boards through retention of a subset of Board members from one term to another has the disadvantage of making it difficult for one Board to develop a common 'team' understanding of its task and of the challenges facing the MRC in a three-year period. The Review Panel accordingly believes that the new Board to be appointed later this year should as far as possible wear a 'new look' and consist mostly of new members (see below).

Neither the EMC nor the rest of the MRC, nor any of the 'downstream' stakeholders of the organisation (like the universities) seems to have a voice of any kind in the selection and appointment of new Board members. This weakens both the Board's moral and scientific authority, and gives rise to a 'fait accompli' situation on the day when a new Board membership is announced by the Ministry of Health. In effect, it appears to the Review Panel

that the institutional autonomy assured in the MRC Act is liable to be compromised in the appointment process for the Board, which does not appear to include any 'checks and balances' to ensure that a set of Board members will take office who are fully committed, in terms of their services to the MRC, to the mandate of the MRC as laid down in the MRC Act, who represent the necessary variety of perspectives and experience, and who will be respected within the organisation for their stature and likely contributions (see below for recommendations).

Issues of conflict of interest have arisen on the Board and have sometimes not been attended to appropriately or in good time (Governance standards 2.4.3-6). This can weaken trust and become the focus of disquiet in the organisation.

With respect to the relationship between the Board and the nDoH, it was noted that while the reporting department had been directly and substantively represented on the Board in the past, in a recent instance a resignation was not speedily followed by a replacement appointment as provided for in the Act. The nDoH for this and other reasons (such as the inscrutable appointment processes for Board members as mentioned above and the Department's failure to arrange a mandatory SETI Review between 2001 and 2010) is perceived as being generally at too great an 'arm's length' to the MRC. The MRC is not often mentioned in strategic nDoH documentation (it is not mentioned once in the Department's Strategic Plan for 201/2011-2012/2013 under priority point 10, 'Strengthening research and development'), and apparently features only in 'routine operational' terms because of the accountability and funding-channel issues for which provision has necessarily to be made. There appear to be different contact points in the nDoH for high-level interactions, such as a Deputy Director-General with responsibility for the MRC as a public entity, and a Chief Director separately heading a cluster for 'Health Information, Epidemiology, Evaluation and Research' within which falls the responsibility for the National Health Research Committee (NHRC) (see Chapter 2 for more details).

The 'locus of failure' behind the MRC's inability to benefit directly from the general R&D stimulus measures of the DST, and to link up properly with other contributors to the national 'Research for Health' arena, appears to reside in its executive management rather than in the Board, since the latter has delegated this function. The structural mal-alignments between MRC and the nDoH and the DST which have been described in Chapter 2 and again mentioned above, must undoubtedly also bear much of the blame.

THE (INTRAMURAL) 'UNIT DIRECTORS' FORUM'

The Review Panel received a submission from the (intramural) 'Unit Director's Forum' (UDF) which it accepted as being a bona fide contribution to its work rather than as 'union'-related argument. The unit directors make an appeal for more consultation with themselves, not only at the level of the EMC but at that of the Board, in order to capitalise on their rich understanding of national health problems and the potential of research to address these. The UDF also appears to be a useful channel for a better- coordinated and –prioritised responsiveness of the EMC to operational problem in the MRC research support system.

The Review Panel heard similar strong appeals for more and better consultation about the MRC's direction and strategies within the leadership cadres of the organisation, from many individual unit directors, both intra- and extramural. The need for mechanisms to achieve this in a manner that will be effective, orderly and inclusive appears to be a priority in the internal governance system of the MRC.

APPOINTMENT OF A NEW MRC BOARD IN 2010

Starting with the Board, the Review Panel believes it to be important that the 'letter and spirit' of the MRC Act be observed in the appointment of new Board members, and that the process should also be more transparent and accountable than it appears to be at present. We are aware that amendments to the MRC Act are imminent, but the need for the Board membership to meet the statutory standard of largely comprising "members who have distinguished themselves in any branch of (the) medical or related science" is very clear (clause 6(2) (ii)). The criteria as to who are distinguished in this way must also be those that are used in the academic/research environment (productivity in research, record of research development, contributions to health innovation, recognition by peers, etc) and not those of civil servants or politicians. Additional requirements of management skills in research and similar environments, leadership roles in committees or boards, can reasonably be imposed in the selection of a multi-perspective team of 12-14 core board members whose skills span the full range of health research from basic to clinical to public health/systems and innovation. The inclusion of the two extra members under clause 6(2) (iii) permits the addition of the formal corporate-legal and –financial skills required in the SETI governance system. The chairperson and deputy chairperson should clearly also be well-recognised research leaders, who have both demonstrably displayed clear leadership qualities

required in the specific context of the MRC's mandate and nature, as a research organisation run effectively and efficiently in pursuit of its specialised mandate on best-practice corporate lines.

We believe the new Act should confirm these requirements, but deviate from the existing numerical composition of the Board by reducing the number of scholarly Board members from 12-14 down to 10, in order formally to include one nominee each of the Departments of Health, and of Science and Technology, the CSIR and the HSRC, who should in practice be senior managers of health research and innovation in their respective settings. The scholarly members should also be appointed with a view to include at least four persons with experience and leadership in health innovation and the translation of research findings into best-practice health care. The best way to populate the MRC Board in a transformative and affirmative way is to go for energy, vision and 'high-flier' potential, in younger rather than older people if necessary.

A SCIENTIFIC ADVISORY COMMITTEE

Following the above approach would again raise the question as to the continuing need for the MRC board to have an advisory committee on research strategies and directions, etc. The presence on the new Board of the kinds of persons mentioned above would furnish it with greatly improved skills in this area. The crowding of Board agendas with fiduciary matters requiring urgent or steady attention may, however, seriously and unavoidably diminish the time available for debates on the 'core business' of the MRC, namely its considerable contribution to the country's 'Research for Health' (see *Chapter 2*). The foreign MRC-equivalents examined in *Chapter 7* all use 'Scientific Advisory Committees' and the creation of the necessary time and space for debates and workshops (some of them in the public domain to 'spread the net') as well as the involvement of outside expertise in this area will be very valuable and answer some of the criticisms about 'closed planning' levelled at the present MRC system during our interviews, especially those conducted with extramural directors and Deans.

We accordingly recommend the re-casting of the present Board Committee on Research and Development as a 'Scientific Advisory Committee' (SAC) of the MRC Board, for which appropriate terms of reference would have to be devised. The SAC should be actively involved in the generation of MRC strategic and business plans. The process of appointment should obviously be as inclusive and transparent as possible. The SAC should be linked to the grant-making committees of the MRC in some way, and to the proposed Senate-like consultative body (see below).

OTHER MATTERS FOR THE NEW MRC ACT

The new Act should also include provisions to address the issue of conflicts of interest, such as excluding from Board membership any person who is in current receipt of MRC funding or who has current or past contractual relationships of any kind with the organisation (Governance standards 2.4.3-6).

The new Act should also specify how the chairperson of the MRC Board is appointed, and require the responsible Minister to promulgate Regulations that spell out in full how and when new Board members are appointed, for example following a well-publicised and -timed call, and involving consultation with a advisory bodies such as the NHRC within the nDoH and the (proposed) analogous health-innovation research- coordinating body in the DST.

ABSOLUTE REQUIREMENT FOR AN MRC 'BOARD SECRETARY'

The Review Panel further recommends that the MRC Board should comply fully with each and every provision of the "Policy on Governance Standards" for SETIs, including the specific appointment of a 'Board Secretary' from amongst the MRC's senior administrative staff (Governance standards, point 2.7), who would be responsible and accountable for the preparation, mandated revision/confirmation and finalisation of all agendas, minutes and other records of the Board, the required shareholder compact with the Minister (Govstds 4), the charter required under Govstds 12, formal delegations of authority, 'conflict of interest' statements, the formal attendance register and other administrative details. The Chair of each meeting must ensure that decisions formally to be taken are properly formulated to the meeting, passed by consensus or a (recorded) vote, and formal dissent on the part of any Board member(s) recorded. Documentation must in each case be identified as being part, or not part, as the case may be, of the Board's deliberations and formal adoptions recorded.

EXTERNAL EVALUATION OF THE BOARD

The required evaluation of Board members, of the Board as a whole, and of the chairperson (Govstds 13) should be conducted by an outside panel, transparently appointed for this purpose by the Minister, and including at least one current Dean of a Health Sciences Faculty. The process and criteria should ideally be laid down in Regulations promulgated by the Minister, and should include scrutiny of contextually appropriate documentation provided by the Board Secretary of the kind mentioned in this connection above.

We have noted from the relevant annual financial statements that MRC Board members are currently remunerated at a higher level than are members of the CSIR or NRF Boards; we do not know why this is so, but consider it not justified. We certainly wonder how a situation came to be approved/implemented that allocated R415 000 in 2008-09 to Council 'honoraria'?

AN INCLUSIVE CONSULTATIVE SYSTEM IN THE MRC

We will examine operational (line management) aspects of executive management of the MRC in another chapter, but wish now to discuss possible ways in which governance of the MRC in terms of its core business of performing and promoting health-related research can be both enriched and strengthened. The internal constituencies which require and deserve consultative involvement are particularly the intramural and extramural directors of research units and groups, and the next tier of younger, 'up-and-coming' researchers. The external constituencies, apart from those in the formal government departments discussed in the previous chapter, and the science councils for which in that chapter we tried to suggest connectivity in relation to 'Research for Health', are mainly the universities and their faculties, departments/institutes and centres involved in health research, usually able to express their collective opinions and expectations through institutional research executives/directors and Deans.

Universities have 'grown up' with the concept of the Senate as the body most able to provide a regulated forum for scholarly-scientific policy, with built-in checks and balances to minimise sectoral advantage and maximise the common interest. The most common membership pattern is one where all full professors are Senate members, plus a much smaller but still significant number of elected (from their number) representatives of associate professors and lecturers, the university executive, and a Council/Board observer. The Senate is chaired by the Vice-Chancellor (equivalent to the President/CEO of SETIs). Senates have clear terms of reference laying down the agreed rules of their operation, and usually meet about 4 times a year. We believe the MRC community should carefully examine the 'Senate model' in terms of its possible application as a consultative body which would provide a regulated forum for the unit directors across the system, plus some elected representatives of the second-tier researcher community, chaired as in universities by the President. Other EMC members would by analogy with university Senates also be 'Senate-equivalent' members. Such a 'Senate-equivalent' body would have terms of reference approved by the MRC Board and administered by the

MRC President. It would, for example, have (rare) formal meetings to consider draft Strategic and Business Plans, and be able to engage with EMC proposals by privileged email prior to these going before the MRC Board. There should be a budget to enable full participation in the (rare) formal meetings by all 'Senate-equivalent' members.

We are not commenting on union-type organisations that may operate on the MRC campus(es), which are subject to the laws and regulations governing labour issues. It is important to separate these operationally from the 'core business'-related governance bodies we have been discussing, in order to avoid impairment of that business. A lively 'Young Scientists' Forum' can be very useful if it injects fresh perspectives into MRC thinking, and less so if it becomes 'trade-unionised'

APPOINTMENT OF THE NEW MRC PRESIDENT

Lastly in this section, we wish to comment on the imminent appointment of a new MRC President. The competence for making that appointment lies with the Board (MRC Act 1991 clause 9 (1)) and with the responsible Minister who must be 'in concurrence' with the decision ('Policy on Governance Standards' point 2.1.9). The Act requires the President to be a registered Medical Practitioner (clause 9(2), which is an out-of-date, inappropriately restrictive requirement that the Review Panel strongly believes should be dropped from the amended new Act. The possibility that the Minister can waive this requirement should urgently be explored. The President needs to be someone who internally commands the respect of the Board, of executive management, and of the senior research leaders of the organisation, and externally relates well and confidently to the relevant upper levels of government, the presidents of other science councils, and university leaders and researchers. This is a 'tall order', but the stakes are high and the rewards of an outstanding appointment enormous. Conversely, the cost to the MRC of a 'bad' or indifferent appointment will be considerable. The new President should find the right balance between hands-on, in house leadership and external advocacy and relationship-building.

The Review Panel is humbly aware of the complexity of a time when a new MRC Amendment Bill may be drafted and passed, say in 2011; when the process of appointing a new MRC Board may already be under way, in the second half of 2010; and when the process of appointing a new MRC President is definitely already under way, in 2010. Ideally, from our perspective, the MRC Act should first be amended, a new MRC Board constituted as

recommended above, and the new MRC President then appointed by the new Board. We appreciate that this sequence may be, and probably is, unattainable, despite its promise of best results for the MRC, the NSI and the country. To the extent that our Report may provide guidelines for operating in the present circumstances, we hope it will be useful as a 'best-possible' approach. We do, however, that it would be reasonable to ask that the crucially important appointment of a new MRC President be made by the new MRC Board shortly after it takes office later this year.

should establish a general research-consultative body within the organisation on the lines of a university senate, involving at minimum all the directors of the intramural and extramural units, but also a (minority) elected representatives of other tiers of researchers in the organisation.

RECOMMENDATIONS

1. The Governance standards set out for Science, Engineering and Technology Institutions should be meticulously followed by the MRC Board, including the (as yet not achieved) signing of a 'shareholder compact with the responsible Minister, the drafting and adoption of a 'board charter', external evaluation of the board, and the appointment of a 'board secretary'.
2. The appointment of a new MRC Board should be performed as soon as possible, following precisely the specifications of the present MRC Act of 1991 in placing a strong emphasis on the need on the part of MRC Board members to have 'distinguished themselves in any branch of medical and health research'.
3. The new MRC President should be appointed by the new Board, not the present one, and the responsible Minister should be asked to waive the requirement for a medical qualification/registration, if that is possible.
4. The MRC Act of 1991 should be amended to achieve the required kind of collective research distinction for the Board, but also representation of four major components of the national 'Research for Health' system, namely the Department of Science and Technology, the national Department of Health, the Council for Industrial and Scientific Research, and the Human Sciences Research Council.
5. The amended MRC Act should also specify how the MRC President is to be appointed, and the responsible Minister should promulgate Regulations that spell out in full how and when new Board members are appointed.
6. Special attention should be given in the amended MRC Act to the manner and extent of the delegation of functions and powers by the MRC Board to the MRC President and the MRC Executive in general.
7. The Board should establish a 'Scientific Advisory Committee' with suitable terms of reference that would require it to advise the Board on research strategy and policy in a way that also draws on internal and external consultative mechanisms.
8. The MRC Executive Management Committee

CHAPTER 4:

OPERATIONAL ISSUES WITHIN THE MRC

This chapter addresses a variety of operational issues raised during the 2010 SETI review of the MRC. Key matters that are addressed in this chapter include organisational structure, performance assessment and leadership issues, collaborations, research support functions, regional centres, equipment, funding patterns, and human capacity. The MRC's strengths and weaknesses in respect of operational functioning are assessed, and the chapter concludes with key recommendations in this area.

STRUCTURE OF THE MRC'S ORGANISATION

The MRC has a relatively flat organisational structure. The 40-plus leaders of the core MRC activities, the intra- and extra-mural unit directors, all report to a single Vice-President for Research who is but one member of the five-person (recently four-person) Executive Management Committee (EMC). While flat structures are generally intended to facilitate communication, innovation and empowerment, these objectives are not being achieved in the MRC. The immediate ex-President apparently wanted to reduce the number of EMC members to two, one Vice-President for Research and one for Operations. By contrast, the (intramural) 'Unit Directors' Forum' in its submission to the Review Panel (see *Chapter 3*) asked for an increase in the number of Vice-Presidents for research, in that there would be one appointed for each of three broad strategic research areas.

There are two ways in which the present flat line structure could be altered. One would be to divide the terrain to be overseen into three well-characterised domains (such as basic /clinical, public health, and innovation/translation) but at the risk of impermeable 'silos' being generated out of them, or to divide up responsibilities in a variety of cross-cutting ways that would encourage collaboration and 'challenge' the organisation. The Panel agrees that the present structure is problematic, and would support a more vertical kind of approach, but wishes to emphasise that the MRC is a research organisation, resembling a football team more than it resembles a bicycle factory. Thus, while the unit directors should be selected for their unique intellectual and scientific leadership qualities (see below), one of the main roles of their 'coaches' and 'managers' (namely the proposed Vice-Presidents) is to ensure high morale, fitness for purpose, and optimised support from the organisation by keeping in close touch with the unit directors and dealing with problems that impair their performance as research leaders. With this should ideally go the kind of executive management style

that emphasises ideas and substance, and down-plays hierarchical display and institutional 'spin'.

The conditions of service of the Vice-Presidents should be as similar to those of the unit directors as possible, but they should simply earn more (certainly no private remunerative work, for example). However the pie is cut in organisational terms, the Vice-Presidents should have job descriptions that make it mandatory that they facilitate matters strenuously at the interface between the units for which they are responsible and the MRC support services. The corollary of this view is that the executive directors of these support services should not dominate the EMC, and we would strongly recommend the contraction of their number in the EMC to one member (the 'Executive Director of Support Operations'), with the Finance Director reporting directly to the President.

Our recommendations for MRC governance in *Chapter 3* would complement these measures in extending the consultative roles of unit directors in making research strategy and influencing the MRC's overall direction (a genuinely functional 'flat structure').

UNIT DIRECTORS, UNIT EVALUATION AND UNIT RESTRUCTURING

The original model of the MRC was based on the notion that outstandingly talented health/medical scientists would be identified at universities, and MRC Units formed around them if they were working in areas that were important for health. The directors were required rapidly to build teams of committed and productive fellow scientists and students. The initial period of support was for 5 years, with a strong possibility of a second 5 year term if they had performed well as judged by an external review. Only occasionally was a unit expected to go on beyond this second term on the basis of a stringent final external review; the directors were expected to re-cast themselves, preferably with a new topic or emphasis, and compete on equal terms with newcomers for the creation of a new unit in new cycle. This system, while being extremely productive, had several built-in problems, the chief one being human resource issues related to the 'career rights' of senior scientists in units coming to an end, who would until then have been supported by MRC-funded but university-administered posts.

The MRC in more recent times appears to have wavered between leaving the problem to universities, alternatively

taking on the senior scientists of extramural units on its own establishment and coping with redeployment and job termination issues itself, or simply phasing out the funding of such senior posts (on terms similar to those still standard in intramural units) virtually altogether, as in recent times. Another approach has been to 'go easy' on the closing of units, and to hope for natural but time-(and money-) consuming solutions such as retirements or movement to other jobs.

What has been retained in the extramural system is the building of MRC units around excellent and productive individuals working in important areas. These latter-day directors have partly 'solved' the MRC's problem by using their 'MRC Unit brand' (equivalent to an NRF A-rating) to raise many of the resources they need, but MRC-funded senior researcher posts are not available for them and their overall level of support from the MRC is much lower than in previous days (see Chapter 2 for details).

The pressure of successive SETI Review reports and elsewhere caused the MRC Board and management to require intramural units to follow the same 'rulebook' as did extramural units, namely 5-year terms, reviews and an insistence on high academic merits of unit directors. Attempts were also made to rein in the burgeoning demands made by intramural units on support services. This has already been discussed in Chapter 2, but the emphasis in this section is on the actual present operation of this 'unit rulebook' in the intramural system of the MRC, as this is a significant operational issue.

The Panel believes that the executive management of the MRC has been unwilling or unable to address the tough issue of applying the basically sound 'MRC unit system' within its own walls. This has not only brought constant and increasingly onerous pressure to bear on the support services (which in the 2010/2011 Business Plan will absorb about R70 million or 25% of the MRC's baseline budget of R280 million) but has prevented the renewal and restructuring of units when the time had come, so to speak. The logic of the unit system is to make the resources available to the MRC go as far as possible, and that requires executive management to stick to the 'rulebook' (including an absolute insistence on high merit on the part of unit directors and the proper use of external reviews.) The criteria for establishment or renewal of all MRC units should be well-formulated and rigorously applied, and comprehensive feedback provided. Amongst others, the criteria should include:

- Originality and power of ideas under exploration
- Quality and number of peer-reviewed publications, international and local, articles, books, reviews and (invited) conference proceedings

- Number of enrolled and graduated Masters and Doctoral students
- High-quality scientific staff or collaborators recruited
- Formal commissioned reports produced
- Patents registered and commercialised
- Demonstrable impact on policies and practices, here and elsewhere
- 'Academic stature' of director, nationally and internationally, and of senior staff
- Funding attracted.

To ensure research relevance, some unit directors proposed to us that they should undergo three internal reviews annually, applicable to intra- and extra-mural and using the same criteria. The practicality of this needs to be assessed, but productive long-term work can be impaired by 'over-review'; the Panel doesn't favour this approach. In order to apply the 5-yearly rule for external reviews of units as described above, the compulsory annual budgeting process is surely adequate for interim monitoring and appropriate corrective or remedial action within the organisation.

We must mention that we engaged with some units that were poorly conceived, and others that were well past their 'sell-by' date.

There is a similar urgent need to review the grouping of units that carry out similar or related research. One suggestion we heard was that the MRC needed to restructure its units according to a particular disease state; this could mean, for example, that all TB research would be carried out in a single macro-unit that would operate across the research value chain. Such a 'Centre of Excellence' approach would improve efficiencies in respect of shared resources and minimise unconstructive duplication of activities, and would link up with the current movement to Collaborative Groups or Programmes (*see below*).

COLLABORATIVE PROGRAMME MANAGEMENT

The Review Panel was impressed by the design of the Collaborative Research Programmes and Groups now in place or envisaged. They are basically a good idea, in our view, encouraging collaboration, attracting new resource flows, and building capacity through complementation and sharing of resources. We were unable to review the current programmes and groups in terms of their performance to date, knowing that such enterprises can be fraught with individual or institutional egos and medium-term instability. We recommend that the programmes concerned be carefully monitored and 're-optimised' from time to time. One of the big issues is the

scale and scope of a Collaborative Programme, whether at national or regional level or only within the MRC. Care must be taken not to blunt the edge of participating groups or to spend most of the time in debate or even in-fighting.

The MRC has an extensive collaborative research programme which facilitates multidisciplinary, multi-institutional research. About 67% of MRC research is apparently conducted through grant and contract funds, many of which are complex and demanding collaborative agreements, such as that with the 'Centers for Disease Control' (CDC) in the USA. The multiple collaborations and linkages with external stakeholders include inter-institutional and inter-unit relations, international and regional collaborations and private public partnerships. One of the positive outcomes of the MRC's culture of collaboration is that it has enabled MRC scientists to co-author papers with distinguished international scientists.

THE MRC'S SUPPORT FUNCTIONS

The reviewers found that there were challenges at the MRC in respect of operational support provided to the research community by the organisation's Finance and Human Resources/Operations functions. Starting with the finance department, researchers apparently find themselves spending an inordinate amount of time fulfilling the demanding financial obligations of projects; payment requests take very long to process; and there are poor or no tracking systems to monitor the progression of order requests. There also appears to be no clear accountability within the finance department, making it difficult to call anyone to book or to follow up with the relevant person when there are delays in the payment and procurement processes. Finance systems seem not to be designed to enable research, and therefore the finance department must find a way to streamline financial systems and processes making sure that there is ease of use, efficiency, accountability and transparency.

It is possible that having a generally agreed 'Standard Operating Manual' for many management and support functions, including service standards for delivery, may be helpful in increasing transparency and improving service performance across the organisation.

Equally problematic issues were raised with the Panel concerning the human resources support functions at the MRC. These centred inter alia on recruitment processes, which are considered to be unnecessarily demanding and difficult to deal with. Job benchmarking practices are said to be cumbersome and time-consuming. Several units have care-taker directors who are not suitably qualified

to provide scientific leadership, some occupying their positions for several months and even years without a suitable high-level replacement being appointed (see above). This has a severely detrimental effect on research quality and staff morale.

There is a need for an accelerated development programme that will significantly increase the number of suitably qualified candidates from within to assume senior positions in the units (effective succession planning) This could help to address problems regarding the replacement of directors and staff with rare skills. The 'Young Scientists Forum' was established primarily to address the 'glass ceiling' experienced by many of the black scientists employed by the MRC, who feel that 'real transformation' has not taken place at the senior level in setting up and maintaining units – the view is that the MRC needs to develop a pipeline (both internal and external) of qualified and experienced future leaders to take over from the aging population of unit directors.

The Review Panel believes that the issue of unit directors as the 'frontline' of the MRC's contribution requires a multi-pronged approach based on an understanding of the actual experience so far in determining how good unit directors have been fashioned, and how the internal and external research environment contributes to that growth, including the judicious granting of sabbatical leave.

Many MRC researchers feel that there is a serious disconnect between the 'Human Resources' support function of the MRC and the specific needs of a research community which does the core work of the organisation. The current directorate has little knowledge of the kinds of challenges experienced by research leaders and their associates, and is poorly equipped to provide the special kind of constructive support and services. An example would be an attitude to qualifications in which professional qualifications like a medical degree, or even a specialist registration, are undervalued in relation to the PhD, in an organisation seeking to oversee and/or perform clinical research on a significant scale.

One of the positive capacity-building initiatives at the MRC is the post-graduate training programme. South Africa generally has a weak PhD output at just over 1000 PhD graduates per year. The MRC through its internship programme is trying to double the number of its Masters students who go on to a PhD: this has resulted in there being 62 PhD (about 6% of the national total) and 59 Masters graduates from all MRC units in 2008/09. New Masters students are guaranteed PhD support from the start of their studies.

The MRC has a special grant for clinicians to take up PhD studies, as well as a labour-intensive programme that targets health researchers who study for a clinical PhD degree. Clinicians, however, complain that these grants are much too small and few, and not reflective of the years of training that research degree-registering clinicians would have undergone during their medical degrees. Grants offered by the MRC need to be more plentiful and competitive, and the organisation needs to measure the benefits of the programme against the cost. To boost its clinical PhD numbers, the MRC needs to engage more effectively with university medical schools in order to be able to capture clinicians who might be attracted to the clinical PhD programme. They also need to target BSc graduates (See chapter 6). The efforts at internal transformation of the MRC are generally impressive, but the critical 'apex' development of research leaders lags and needs to be improved by a careful study of 'what works and what doesn't' in terms of internal case histories, observed career trajectories, and lessons from other organisations.

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The Review Panel was not impressed by the approach of the MRC to capacity building in the historically disadvantaged universities. The use of local workshops on proposal writing and the like cannot compensate for the absence of high-level strategies to establish productive research enterprises, perhaps along the lines of the very successful NRF-Royal Society (UK) partnership which has succeeded at comparatively low cost in establishing centres of excellence in several cutting-edge fields at four such universities in South Africa ¹².

REGIONAL CENTRES AND SPACE ISSUES

The MRC has two regional centres located in Pretoria and Durban, which require a degree of local operational support to ensure their smooth functioning. The MRC has struggled to plan for the growth of regional centres, and the support provided to the regional centres appears to have been generally inadequate. As a result, the MRC's Durban Centre, for example, is finding itself challenged by space and operational support problems. Slow decision-making and funding constraints make working conditions there challenging. Suggestions to us from researchers operating at regional centres is that these centres should be capacitated with dedicated research support services, and that adequate space should be provided for their local research operations.

The Review Panel was not in a position to examine these claims, nor the other issues of a country-wide operation of the MRC. What is important is that the local demands, however legitimate in the direct sense, should not impair the overall functioning of the MRC in terms of its mandate, which calls for maximum resourcing of the 'coalface' and an efficient, 'tight ship' type of support system. On the other hand, the ability of the Pretoria office of the MRC to embed the organisation in the 'networks of government' and the major science organisations in Gauteng Province has not been adequately developed.

MRC RESEARCH EQUIPMENT

MRC units currently receive sub-optimal funding to maintain, replace and purchase new equipment. While the organisation has significantly increased its financing of capital equipment, the amount available is far short of the estimated R200 million needed to capitalise all its research, both internally and externally. In the financial year 2008/9, the MRC spent close to R17 million on capital equipment as opposed to only R3 million in the previous year; the increased capital equipment funds were drawn from the MRC's reserves, and a further R10 million is planned for the current financial year. Most of this funding is directed at extra-mural units which in general run laboratory-intensive operations. As a result, capital-intensive intra-mural units have been getting less support from the organisation for their equipment requirements, and some are shifting the focus of their work to non-laboratory projects.

A closer link with the DST would materially assist the MRC in improving its access to funds for capital equipment. Bids to the National Treasury for research infrastructure fall within the domain of this Department. Money can also be accessed from the Science and Technology Budget vote (of which the CSIR for example is making full use).

Capital support is an important function of the MRC, and the organisation needs to find a better way of channelling funds towards the equipment needs of intramural units such as PROMEC and the Diabetes Discovery platform. Funding allocations to MRC internal units are classified under salaries, operating and capital, necessary for financial reporting purposes. Because capital grants have not been awarded every year, units sometimes utilise their operating budgets for the purchase of small items of equipment such as computers, monitors and printers. They generally motivate to the EMC for the purchase of larger capital items, following MRC procurement policies and procedures if the application is successful. To be able to perform good research, the units need to acquire necessary equipment in a more integrated and less ad hoc manner; the need for rational restructuring of resource

flows is therefore also evident in this area (see above).

RESEARCH FUNDING IN A CONSTRAINED BASELINE BUDGET

The issue of the overall poor baseline funding of research was raised time and time again during the Panel's interviews, and is also reflected in documents such as the MRC's Research Strategy 2005 – 2010 and the Submission to the Panel by the 'Unit Directors Forum'. Both kinds of MRC units receive but a fraction of their operational research costs from the MRC and rely heavily on raising external funding, mainly from international sources. In fact, in 2009, 53% of the MRC's total funding came from external sources. The Research Strategy document states that "the MRC is in no position to optimally support the large number of [extra-mural units/ groups/ centres]". The greater portion of intra-mural funding goes towards salaries rather than research itself. Despite this situation, the MRC has continued to establish new units which struggle to reach sustainability. Researchers are of the view that where the MRC agrees to the formation of a new unit, the organisation needs to provide proper support to the unit to ensure its success during the start-up phase.

It is the strong view of the Review Panel that the MRC needs a much higher level of baseline funding than it currently receives to meet its research mandate. The problem is that the National Treasury will likely find it difficult to increase the quantum in recession-affected times if the much more cost-effective extramural programme is not expanded at the cost of the resource-intensive intramural programme, simultaneously lowering the 'overhead' of a hypertrophied support section. Thus the revised MRC's 2010/11 Business Plan indicates that the MRC's Support Directorates will expend about R70-80 million out of a total of about R 280 million baseline funding. The fact that the actual turnover of the MRC is expected to be in the region of R 540 million (baseline plus R 260 million of outside income) does not in our view justify the existing high administrative costs, which are obviously partly driven by the 'extra' administration involved in managing the contracts and grants brought into the MRC system by an inherently under-funded but overly expanded set of intramural units. These high administrative costs can simply not be justified in any way, and the MRC needs urgently to find a way of reallocating its resources such that so that the baseline funds are clearly more efficiently deployed for the core work of the Council. This will need significant restructuring of the intramural programme and down-sizing of the support directorates. Mechanisms for reducing the inertia inherent in the budgeting system for intramural units will also have to be sought, to increase the 'agility' and responsiveness of the organisation.

The question of accessing more of the funds currently being 'unlocked' by the DST from the National Treasury/ Cabinet entails being much more pro-active in being part of the unfolding strategies, and not 'hoping for morsels' from programmes such as the major capital equipment fund managed for the DST by the NRF, the similarly managed South African Research Chairs Initiative, and the a variety of DST-managed national collaborative programmes. Encouraging MRC researchers to apply for NRF ratings is helpful, but the sting in the tail is whether this is really covered by the NRF's own mandate.

The MRC could take a leaf out of the book of the UK MRC in establishing a special foundation within the organisation which is focused on raising funds for the MRC's programmes (see *Chapter 7*). Increasingly, research entities across the world are establishing offices whose function is to raise donor money for the organisation.

Another possibility is to establish a 'Special Purpose Vehicle' (SPV) for revenue generation, since, due to its Section 3A listing in the Public Finance Management Act (PFMA), the MRC cannot budget formally for a surplus. The money generated through the SPV could then be directed to research support and capital expenditure. In this connection, the Review Panel agreed that it would not be advisable for the MRC to seek Section 3B status as this would almost certainly jeopardise the sustainability of the MRC's baseline funding.

The Review Panel cannot emphasise enough the urgent need to re-balance the MRC business plan/budget as suggested above, and to seek powerful and motivated sponsorship at government level (see recommendations made in *Chapter 2*).

SETTING RESEARCH PRIORITIES

The MRC has a Research Strategy for the period 2005 – 2010 (a new Strategic Plan for 2010-2015 will shortly have to be drafted) which presents the strategic focus of medical research in the organisation as being on population health, disease and disease mechanisms, and health systems, settings and policy. Training and capacity building are intended to link these three focal areas. While the strategy document provides detailed explanations of what each focal area entails, the evidence that implementation took place in the period concerned is somewhat thin, and the report is seen by the Panel as weak in articulating how the current set of research activities will be 'migrated' into the new strategy, and how the strategy will be implemented.

There is a clear case for the MRC to redefine the focal areas of its research in such a way that the organisation is able to link up with both the nDOH and the DST, as well as the CSIR, HSRC and NRF. We have argued in Chapter 2 for a fundamental application of the principle of "Research for Health" across the entire NSI, and for a more clearly defined and followed mandate for the MRC, and this will accordingly not again be discussed here. What is important operationally is the fostering of trans-disciplinary thinking in the research environments of the MRC, on university campuses or the MRC's own campus and regional centres. The Panel was bemused to find that an intramural unit working on alcohol and narcotic abuse was not very interested in the work of an extramural unit (located in the same region) working on anxiety/stress and obsessive/compulsive disorders, which seemed strange to say the least. Cross-unit seminars need to be held frequently to build a critical and interactive community of researchers.

One aspect of this 'research community' that could be built quickly and easily is the creation of an 'open access' MRC repository of published papers, dissertations, reports, proposals, and the like, similar to those now being established at most South African universities. (The MRC's campus library seems now to have become inadequate and somewhat irrelevant.) Effective knowledge and data management is essential to improving the translation of health research and applications in general. The MRC holds an immense number of data collected over decades, which when analysed and suitably packaged, will have significant value for future policy and strategy development. In this regard, the organisation needs to develop processes and platforms that promote information exchange and knowledge-sharing through the mining, analyses and reporting of stored data.

OPERATIONAL STRENGTHS AND WEAKNESSES; KEY ACHIEVEMENTS; COMPETITIVENESS.

Strengths

There are a number of positive features within the MRC's operations, notably the ability to conclude and renew major agreements and contracts with some of the world's biggest and most demanding funders. Some of the units have succeeded in exerting significant influence on policy and practice, in both clinical/basic areas and in the public health domain. The MRC has attracted and retained a cadre of high-quality researchers who head highly productive, world-ranking research units. Many of them told us their working environment at the MRC was very satisfactory. The unit directors have been particularly successful in securing significant grants

and contract research funding, publications and patents. The MRC's forty-year old brand has contributed to the success of extramural units in attracting major research funding. Many participate in large, collaborative research projects mainly funded through international funds. A large part of the contemporary MRC is fully the equal of its predecessors, if not better.

The MRC plays an important and strategic role in supporting large-scale facilities of national importance such as the Primate Unit; access to such facilities by local institutions would not be possible if they were not maintained and supported by an institution like the MRC.

The MRC also offers attractive opportunities to its staff to progress to post-graduate studies while remaining involved in research activities, a strong facet of the organisation's offerings.

Weaknesses

It is in the nature of 'constructive reviews' that they tend to concentrate on the remediable weaknesses of organisations, believing this to be more useful than pouring praise on good efforts and achievements. We believe that the MRC's leadership vacuum and visible tensions between the Board and Executive Management have had ripple effects on operational effectiveness within the organisation. The MRC units collectively call for strong, dynamic leadership that will again bring credit and momentum to their organisation, and new strategic direction. Such leadership should have international credibility and status, and lead the organisation in developing a coherent plan for the MRC, and especially to map out clear policies for the establishment of new units, regrouping of units, closure of old units and the development and growth path of units. Not having such leadership already in place is a serious weakness, and it is beginning to damage the MRC (and its brand) as a whole.

Much was said to the Panel about the MRC's over-centralised and slow decision-making processes. Challenges in this area are experienced in terms of inefficiencies whereby financial processes, human resource decisions, ethical approvals and legal services take a long time to process unit requests, and delays and frustrations arising from an inscrutable, unwieldy top-down decision-making process, especially when matters need to be referred to the MRC Board, which meets only four times a year. If an issue needs refinement, resulting in a back and forth situation with the Board, it can take up to 18 months for approval - such inefficiencies compromise the agility of the MRC.

The MRC research community is calling for a system that will make its senior members part of the strategic and business planning processes of the organisation. They don't have, and badly need, a formal structure that will facilitate communication between the Board, EMC and unit directors. There needs to be harmonisation of responsibility, authority and accountability.

The MRC suffers from the outside perception that its grants are pitifully small and not worth the considerable effort and time involved in applying for, and reporting on, these grants. The MRC has also imposed apparently over-strict rules on extra-mural units with respect to defined membership of units and the accessing of further MRC funding by unit members other than the director in question. The MRC has a one year funding cycle, which means that units can only apply once a year for funding, as opposed to more suitable cycles of two to three times in a year, to accommodate changing research circumstances. The retention of promising and valuable talent in the extramural units remains a challenge, as MRC grants cannot be used to fund open-ended research posts. As a result, unit directors are forced to place research staff on short-term contracts that are limited to the duration of research contract work. This is not an ideal situation as units lose valuable skills and experienced staff at, or even before, the end of projects. An additional serious challenge is that external units generally receive their funding allocation months later than it is expected (usually arising from delays in the approval of business plans), and the host universities impose interest payments on bridging funding provided out of necessity.

During the course of conducting the interviews, several weaknesses that amount to risk management issues were identified. These include the unreliable financial management of grants by the finance support system (where there is a perceived weakness in monitoring and seeing to the proper management of project funds), weak succession planning (no 'logical', high-level successor identified for a key enterprise), loss of potentially outstanding grantees (who regard the MRC as a poor and troublesome funder), and administrative demands created by devolution to busy researchers of the administrative loads of support staff.

RECOMMENDATIONS

1. The issue of effective line management in the MRC's research organisation needs to be addressed by a new determination of the number, job description and key roles of the Vice-President(s) responsible for research and the Executive Director(s) responsible for support services. We propose an Executive Management Committee comprising three Vice-Presidents for research and one Executive Director for Operations, with the Executive Director Finance reporting directly and separately to the President.
2. The new MRC President needs to be a distinguished researcher with a strong record of 'turning around' struggling organisations.
3. The 'rulebook' for the establishment, continuation, restructuring and closure of research units need to be clear on both process and criteria, and need to be rigorously applied after external review.
4. The next business plan and budget must be directed to significant scaling down of the excessive burden of administrative 'overhead', and the cost-effective shifting of resource allocation to new and existing, high-quality extramural activities across the spectrum of the research mandate.
5. The MRC support services need to be 'true servants' of the research enterprises making up the core business of the organisation, by shedding unnecessary activities and concentrating on efficiency and effectiveness in key processes.
6. Attention should urgently be given to addressing the many concerns of extramural units that can in fact quite easily be addressed, as well as others that might justify additional resourcing.
7. The MRC needs to review how it optimises its access to available funding opportunities, through a proactive approach to leverage from government and other sources.
8. Collaborative programmes and groups must be strictly monitored to ensure they are 'adding value beyond the sum of the parts'.
9. Research linkages with other SETIs need to be significantly improved, including those with the Technology Innovation Agency (TIA), the NHLS, the HSRC and the CSIR.
10. Improvements in the synergies between intra- and extra-mural activities should be sought.
11. The approach to research development in the historically disadvantaged universities and universities of technology should be reconsidered in the light of interventions that have worked and those that have not.
12. An 'open access' institutional repository should be established for deposit of all accepted, peer-reviewed papers, books and conference proceedings, as well as dissertations, proposals and reports, etc
13. The annual 'business plan cycle' should be organised with strict time lines for all participants to ensure timely completion, delivery and approval.

CHAPTER 5

EVALUATION OF THE OUTPUTS AND OUTCOMES OF THE MRC

The mandate of the MRC, discussed in detail in *Chapter 2*, is focused on performing its own research or funding and facilitating research done by others, in a general capacity-building mode, and with a strong view on the desirability of translating the research into public benefits, especially good health and the resulting enhanced quality of life.

The brief of the Review Panel is to evaluate whether the quality and scale of the outputs, outcomes and impact of the MRC are in proportion to the expenditure of public money, and to the infrastructure, established science base and general public investment over the years. This not an easy task, as the metrics employed by the organisation are not yet sophisticated enough to permit a deep investigation, and comparisons with other similar organisations are similarly unfeasible. We also did not have access to data on the long-term national investment in the MRC, apart from extrapolations from current reports on public expenditure on the organisation.

THE CONTEXTUAL SIGNIFICANCE OF THE 'RESEARCH FOR HEALTH' PRINCIPLE

The Review Panel has based much its approach to the MRC's work on the 'Research for Health' principle, as demonstrated in previous chapters. In terms of the evaluation of performance, the principle requires that the measures to be employed reflect sets of both outputs and outcomes, the first set being so designed as to facilitate the attainment of the more important second one. Some kinds of outputs may be valid proxies for some desirable outcomes; others may set the stage for the possible attainment of certain outcomes; and yet others may actually represent good outcomes themselves in the context of public benefit under national policy. We hope to refer to examples of all of these late in this chapter.

'KEY PERFORMANCE INDICATORS' (KPIs)

Internally, performance indicators drive behaviour, while in the external context they provide a proxy by which external stakeholders assess the quality of the research output of an institution. Performance measures are equally important in monitoring progress in the implementation of a given strategy or policy, as well as in comparing the performance of different SETIs within the NSI.

The SETI 'Governance Standards' set by the DST in 2006 are emphatic about the importance of key performance indicators (KPIs) in regular reporting, based on five perspectives: stakeholder; financial and investment; organisational; learning and growth; and human resources and transformation. Reports on these perspectives must be approved by SETI Boards and indicate the impact and reach of projects and programmes on the people of South Africa.

A similar set of KPIs is laid out in each of the last three or four MRC Annual Reports. They are presented under a larger number of headings than the minimum prescribed in the SETI 'Governance Standards', but those are all present in the list of headings for the year 2008/09:

- Research strategy and business plan
- Financial strategy and business plan
- Opportunity and risk management
- Human capital management and development
- Transformation and development plan
- Innovation and technology transfer
- Informatics and knowledge management
- Research translation
- Stakeholder management

The indicators under each heading are a mix of (mostly) quantitative items and (fewer) qualitative ones. If one adopts the categorisation of outputs suggested above, outputs like 'produce new knowledge through conducting research' are outcomes in themselves; 'doubling the number of PhD students (in MRC units)' is an enabling output in that its attainment may increase the rate at which the national 'knowledge society' can be established; and having 62 African-black PhD students enrolled in units is a proxy for effective transformation of the scientific workforce.

Many of the key indicators under 'research translation' reflect very impressive outcomes of MRC work in terms of national health benefits (although in some instances the claims of predominant MRC agency may be exaggerated). The Panel has examined this and other information in the KPI schedules very carefully, and believes that in general the indicators are objectively laid out. On the face of it, they often show impressive progress in the aspiration to effect improvements on most fronts, and to attaining many of the targets set for the year in question. There are national and global impacts of MRC research findings, such as

changes in national policies; changes to guidelines or policies in international institutions such as the World Bank, UNAIDS and the WHO; and implementation of research-based recommendations.

A major problem with the present KPI system is that despite the Panel's 'paper conclusion' that the MRC is impacting well on many areas of national health, the perception of MRC performance in the national Department of Health (as expressed to the Review Panel) is highly negative, and there is a robust view that 'value for money' is not being provided by the organisation, and that policy and practice are not being impacted. Either the KPI reports are not true, or they are not being read or communicated/disseminated where they should be. The layout and presentation is perhaps at fault, or the 'logic' used is not easily understood.

One of the main difficulties with the KPIs as presented in the MRC Annual Report is the context-free way in which some of the indicators are set for the organisation, although we appreciate that the 2005-2010 MRC Strategic Plan is the anchor on which the logic of the indicators is based. This is fine, but the Plan is an internal one, and the external context of the NSI is too indistinct to be much noticed. It is important to know, for example, how some of the quantitative indicators compare with those of other organisations, or better, how they position the MRC as an increasingly (or decreasingly) active contributor to the whole knowledge-producing system in South Africa, or, according to the 'Research for Health' principle, how much the parlous South African health situation described in the Lancet series of articles³ is being ameliorated, year by year. Some of the indicators in the MRC Reports show this, but many do not.

Despite the above reservations, it is our opinion that the 'paper conclusion' obtained from the KPIs reported in the most recent Annual Report and the new ones summarised in the 2010/11 Business Plan is one of a productive organisation, providing value for public money in proportion to the investment generally, and with a balanced approach to the different prescribed perspectives of the SETI system. Yet we have identified serious problems in the MRC's positioning in the NSI, its governance, its operations, and its stewardship of the core activity of clinical research, etc (addressed in other chapters).....The question arises as to the real value/validity of the KPI approach currently in use in the MRC? What should be done in future years?

**SOME POINTERS TO A MORE
INFORMATIVE APPROACH TO OUTPUTS**
Our main contribution to forward thinking for the next 5

years is to make a plea for a more nuanced approach to conventional output indicators, one that would examine each of them in relation to an approach focused on outcomes as discussed above. The indicators should also embed the MRC's performance in that of the entire National system of Innovation (NSI). Both changes would greatly increase the sophistication of the measuring tools. For example, the outputs of the MRC's activities should not be measured only by high-level parameters (such as the overall count of peer-reviewed publications), even if those parameters have been shown to be a proxy for several others less amenable to measurement. Outputs of the kind that are reported in the MRC documentation, which can be measured as easily as publications, such as the numbers of enrolled and graduating (research) postgraduates, registered and commercialised/licensed patents, and official and/or published advisory reports, are important and legitimate outputs of activity, but also need to be measured and interpreted in a comprehensive and integrated manner. Translational impacts need also to be measured or enumerated in a manner that is based on the 'deep' approach of seeing each output in relation to its possible beneficial outcomes.

Thus, in order to move to an outcomes-focused approach, the outputs need to be correctly identified, accurately measured and expressed in terms of how they can be linked to beneficial outcomes. This conclusion justifies an illustrative section on some quantitative indicators that are traditionally fore-grounded in KPI presentations, namely publications.

As an agency that provides an essential 'nucleus' of recognition and financial support to individual researchers working at other institutions, the MRC is a 'shareholder', rather than an 'owner' of the extramural or collaborative outputs such as publications produced using its name / and or with its (partial) support. It is traditional for science institutions (and their researchers) to claim full credit for any publication produced by even a single author of collaborative or multi-institutional work. Thus, the MRC has adopted the practice in its reporting of 'claiming' all published outputs in which its name appears on the author(s)' address listings, whether in peer-reviewed articles, books, conference proceedings or official reports. [Postgraduate degrees acquired through work done in all MRC units, extra- or intramural, are also 'claimed', as are postgraduates studying with MRC bursaries. (Patents are covered by the Intellectual Property regimen of the MRC and recent national legislation in this area).]

It is axiomatic that 'double-counting' of publication outputs, such as simply adding up the publications of

all units in an organisation and not discounting those produced in collaboration between units, is completely taboo when the total output is presented (the MRC in its Research Output Report for 2007-8 was guilty of this practice, according to a count performed by a member of the Panel).

The South African Department of Higher Education and Training (DHET) uses a further set of parameters to allocate credit for research outputs to institutions, by dividing articles (or books or conference proceedings) into 'units' of which fractions are allocated to different institutions depending on their share of the total authorship.¹⁴ In addition, articles are divided (but at the same unit value) into those which are considered to be 'international' (indexed by the Thomson-Reuters Institute of Scientific Information, ISI, or by the International Bibliography of Social Sciences, IBSS, which may be foreign to South Africa or indigenous), and those which are 'national' (published in non-indexed but peer-reviewed local journals). The DHET measures for institutional outputs measured in this system are the most widely quoted and used in the South African NSI, despite their uniqueness in being restricted to this country. Research producers in South Africa outside the DHET system are at risk of comparing 'apples and pears' if they use the 'single author equals a unit' claiming system described above.

The practice of claiming all authorships as being equivalent (which underlies the above-mentioned credit-claiming system) is, of course, subject to justified scepticism when issues of 'senior' versus 'additional authors' (or even 'passenger' authors) is considered. An increasing emphasis is placed on 'first authorships' in academic processes such as promotion and grant- or bursary- making, as is the recent emphasis on requiring that candidates 'please list only the best 5 or 10 papers in your canon', not the (long list of) the rest. The 'science' of bibliometrics has grown up around the useful although also controversial proxy of citation analysis, a kind of universal 'peer review' accorded to a particular article in a specified post-publication period (say, 2 years) by all other authors. Thus, individual articles may achieve high 'citation rates', and journals, high 'impact factors' (average citation rates of all articles published in them). [The 2006 ASSAf Consensus Report on 'Research Publishing in South Africa' is a useful guide to this topic.¹⁵]

The relevance of this discussion of 'classical outputs' (peer-reviewed publications) to the question of rather expressing outcomes, is that the impact of research articles is an indication of their impact on thought, practice, collaboration, and general understanding in

a field. By asking for information on citation rates and journal impact factors rather than mere numbers of peer-reviewed articles we effectively move from an output to an outcome.

An interesting and important parameter of capacity development (an outcome) is the percentage of peer-reviewed articles published which are first-authored by postgraduate students. The desired outcome is a new generation of competent research leaders, deduced from an output, because the identification of 'high-fliers' is facilitated by this measure, and progress in building a new generation of scientific leaders assessed over time. What all this means (using peer-reviewed publications as the discussion parameter) is that research organisations like the MRC have to use the most sophisticated measuring tools available, adapt them to widespread local usages, and link them to one or more desired outcomes, if they wish to present a realistic picture of their performance as it is embedded in the whole NSI of the country. In the case of publications, this means inter alia using the fractional method of allocating credit to collaborating institutions; breaking up publication statistics into 'first-authored' and non-first-authored' papers; looking at who publishes, who is first author, and who is senior author; deriving average citation rates and impact factors, respectively, for each article and the journal in which it appears, or for a randomised sample; dividing up papers into 'international' and 'national' categories, and the former into 'foreign' and 'local'; and perhaps even acknowledging 'ownership' share in certain papers where the majority support has been from elsewhere. In each case, the desired outcome(s) must be functionally linked to the listed output(s).

The Review Panel believes that a national best-practice approach to reporting of research outputs by different components of the NSI is badly needed, one that would include the MRC, and that can perhaps most easily and acceptably be achieved by the convening by the DST of a multi-party workshop in which MRC unit directors would be involved. The MRC in its 2008/09 Annual Report indicates (page 112) that "the KPI of impact factors and citations to evaluate the improvement of quality in publications is still being assembled in terms of knowledge management tools to correctly measure these indices." The Review Panel agrees, and the analysis provided above is intended to assist in doing precisely that, but not only in assessing 'quality' in the 'pure' sense but in terms of how they are linked to outcomes. We also contend that the KPIs of one organisation must be contextualised in the system as a whole, in the context again of national 'Research for Health'.

The importance of a systematic and careful approach to the reporting of outputs in the context of desired outcomes can perhaps be illustrated by listing some questions, answers to which would be particularly informative for strategising and policy-making on an outcomes basis:

What percentage of the total annual higher education publication count was contributed by MRC-supported authors? Is it increasing or decreasing?

What is the MRC's annual publication count using the DHET fractional allocation system? For intramural units? For extramural units?

How many papers were the result of collaborations between intramural and extramural MRC researchers? Or of collaborations between MRC units and non-MRC researchers? Or of international collaborations?

How many (what percentage?) peer-reviewed papers produced by MRC-supported researchers were published in South African indexed and non-indexed journals, respectively? What are the figures for intramural and extramural units, respectively?

What is the average (ISI-based) impact factor of a random sample of the journals in which MRC publications have appeared? What is the average citation rate of randomly selected articles? How do intramural and extramural researchers compare?

Out of the total number of MRC publications produced in year 20XX, how many (what percentage?) were first-authored/senior-authored by scientists/scholars who are actually employed by the MRC?

How many papers (what percentage?) were first-authored by enrolled graduate students working in MRC units?

Overall, can these kinds of metrics assist in plotting progress in achieving goals and allocating resources to best effect?

The Panel believes that outputs other than publications can also be similarly deepened to link them to desired outcomes and to achieve greater usefulness in framing

policy and devising strategies. The data on enrolled and graduated postgraduate students (Masters and Doctoral) occupy a lot of space in MRC Annual Reports but they leave it to the reader (who must first ascertain which of the listed units are intramural and which are extramural) to calculate that 14 Masters students graduated from the intramural units in the year in question, compared with 45 from the extramural units, and in the case of doctoral degrees, 12 compared with 50. The totals are 26 and 95, respectively, an impressive difference: the extramural units are clearly making a bigger contribution to the desired national growth in graduating Ph D students than are the intramural units. If the desired outcome is that Ph D students 'raised' in a unit should be retained within the organisation, perhaps as future unit directors, then different data are needed, i.e. how many of the graduated students are continuing in their units as career scientists? If the desired outcome is clinician-scientists, then data on the percentage of health professionals in graduating cohorts becomes something interesting in relation to the outcome concerned.

Thus, we miss information in these MRC tables on the personal academic trajectories of the black (African) PhD students supported by the MRC – where did they do their undergraduate degrees? Did they move between institutions to get to their doctoral status? This kind of analysis may allow new ways to success in capacity building to be devised, which is the desired outcome.

Without belabouring our point further, we finally repeat our plea for increasing the care taken in designing and presenting KPIs, focusing on outcomes, and embedding the data within the system of which they are an important but not yet well-quantified part.

RECOMMENDATIONS

1. The MRC's current approach to performance reporting needs to be revamped to become more nuanced and informative, expressing outputs in different ways in the context of different desired outcomes.
2. Such an approach will be useful for internal strategic planning purposes and to project a better understanding externally.
3. Particular attention has to be given to the embedding of MRC outputs in the context of national policies and comparable datasets of the system.
4. A national best-practice system for key performance indicators in the case of South African research organisations should be developed with suitable partners within the National System of Innovation, in order to provide consistency and accuracy in a highly informative performance indicator system which always links outputs to desired outcomes.

CHAPTER 6

THE SPECIAL ISSUE OF REVITALISING CLINICAL RESEARCH IN SOUTH AFRICA

DECLINE OF AN MRC FOCUS ON WORLD-CLASS CLINICAL RESEARCH

The Review Panel in addressing the strengths and weaknesses of the MRC and the organisation's response to the critical situation of health and health services in South Africa (as graphically illustrated in the 2009 Lancet series on "Health in South Africa"³) was struck by the small component of the MRC's current research portfolio that is dedicated to clinical research (as defined below), other than in the form of clinical trials for infectious disease therapies or population-based socio-behavioural studies. This was the case when it would seem that there was a need for an increase rather than a decline in this fundamentally important field. What MRC-supported work there was seemed to be done in a small number of units or in the form of modest self-initiated studies.

Thirty years ago the clinical research component was dominant in the MRC system, and South Africa was a major contributor to the field. While there has been much development of public health and health systems work since that time, it seems as though the fall in clinical research has been precipitous and potentially disastrous in terms of achieving a well-balanced overall spectrum of activity and contribution to the health of the nation. Clinical studies have been amongst the major contributions made in the past by South Africans, inter alia to kwashiorkor and marasmus in children, iron overload and deficiency, coronary and cardiomyopathic heart disease, hypercholesterolaemia, acute and chronic liver diseases, liver and oesophageal cancer, cervical cancer, HIV and M.tuberculosis infections, common genetic disorders, etc.^{5,6}

The drastic departure from research on the mechanisms of causation, progression and reversal of common diseases as a prime focus of MRC activity appears to the Review Panel to deserve special consideration in this Report, hence this chapter.

A PROPOSED MRC 'CLINICAL TRIALS RESEARCH INITIATIVE'

In the above context, the Panel noted with interest and approval the MRC proposal to establish a 'Clinical Trials Research Initiative'. The purpose is said to be to "change the paradigm by which the MRC conducts clinical trials research in many of its research entities" (of which 10

each carried out between 1 and 12 clinical trials between 2003 and 2007). Its proposed structure and operations will "foster linkages with and across MRC research units involved in clinical research, foster interdisciplinary and cross-fertilising collaboration, contribute to an integrated clinical research agenda, and eliminate overlap and duplication of activities". The scope of the activity would, however, be wider, in that it would also try to "meet the national need in the public sector, which would include HIV/AIDS, tuberculosis (including the drug-resistant forms), cancer, diabetes mellitus, diarrhoeal diseases and meningitis, amongst others". The organisation would be non-profit in that all profits would be ploughed back into research. The vision is the eventual creation of a national institute, "serving as a national reference centre for the African continent, providing support to the WHO, functioning as an international teaching and training centre, and promoting drug development science in the country." We will return to this proposal later in this chapter.

A TIMELY REPORT ON CLINICAL RESEARCH BY THE ACADEMY OF SCIENCE OF SOUTH AFRICA

The Panel considered itself fortunate therefore in having at its disposal a recently released major Consensus Report of the Academy of Science of South Africa (ASSAf) dealing with the "Revitalisation of Clinical Research in South Africa".¹ This was compiled after two years of thorough investigation by a multi-perspective panel of experts convened by Prof Bongani Mayosi, Professor and Head of the Department of Medicine at the University of Cape Town, who was interviewed at length by the panel.

The ASSAf Report identifies 'clinical research' as

".....research primarily conducted with human participants (and on material derived from them, such as tissues, specimens and cognitive phenomena) during which investigators examine mechanisms, causation, detection, progression and reversal of human disease."

Such research, which falls squarely within the MRC's public mandate in South Africa, contributes to health care at all levels by identifying the causes of problems, facilitating diagnosis, improving the efficiency and effectiveness of care, and promoting good policy-making. It also supports the training of competent health professionals of all kinds, and contributes to global knowledge about locally as well as generally prevalent

diseases in terms of prevention and treatment.

We believe it is true to say that the future of clinical research in the country (a core endeavour in building an adequate health system for the population) depends on the MRC's ability to re-focus on this area, to mobilise support and sponsorship at government level as well as from industry, and to lead the kind of concerted revitalisation programme laid out in the well-considered ASSAf Report, to which we will accordingly refer to further in this chapter.

The Report finds that "the key narrative of clinical research in South Africa over the least two decades has been that of a largely unplanned but cumulative disinvestment in publically funded programmes resulting from the withdrawal from this sector of the health departments of provincial governments (academic hospitals are now funded for service functions only), the absence of discounts for research tests from the business model of the National Health Laboratory Service, chronic underfunding of the Medical Research Council despite its obviously important mandate for maintaining and developing medical/clinical research capacity in the country, and the lack of funding streams to universities that might in principle have been applied to meet the overall shortfall in support."

Our interviews with two Deans of health science faculties confirmed the above picture, lamenting the shift to drug trials funded by pharmaceutical houses as a default response of academic clinicians to the poor public funding of clinical research. They considered the MRC to have been too passive in addressing this serious systemic problem, to the point where self-initiated clinical research was funded at a completely unviable level.

FIGURES FOR CURRENT MRC SUPPORT OF CLINICAL RESEARCH

With specific reference to this problematic situation of the MRC, the Report examined the MRC allocations in 2007-8 for health research at universities. Only about R12 million for operational costs was awarded to about 40 applicants/recipients for self-initiated health-related research throughout the country, of which only R4 million (about 30%) appeared to be destined for clinical research as defined in this report. The support for Research Units and Centres based at universities was significantly larger, with operational costs covered at about R25 million for about 25 such recognised enterprises. Of this, only about R5 million appeared to be destined for clinical research as defined in this Report. The awards for salaries at units and centres were approximately three times the operational grants, so the total investment in clinical research outside the MRC's intramural programme was about R4M plus

(R5 X 4= R 20 million), or just under R25 million. It is not surprising that virtually all the MRC's Research Units and Centres based at universities obtained the majority of their funding from non-MRC sources, notably foreign foundations and government agencies, local and international drug houses, and other South African funding agencies such as the National Research Foundation and the National Cancer Association of South Africa.

It is our impression that the many opportunities in the MRC's own intra- and extramural units for functioning as a network for clinical research development are presently not being taken up, and this is obviously why the CTRL proposal addresses this need.

The MRC has no policy prohibiting awards for patient-related costs (e.g. hospital beds) or fee-for-service laboratory tests, but limits its awards to R150 000 per annum for 3 years for self-initiated research projects, due to shortage of funds allocated for this purpose. Very few applications currently include budgets for patient-related costs, as though the research community concerned has tacitly "written off" the Council as a source of funding in this domain of their budget planning. Alternatively, projects involving such expenditures are avoided. In either case, the information confirms that the funding gap left for clinical research in South Africa by the structural developments to be described below, has not, and presently cannot, be filled by the MRC.

A NATIONAL 'CLINICAL SCHOLARS PROGRAMME' LED BY THE MRC?

There is currently no national plan to provide coordinated support for the training and development of clinical researchers, and grossly insufficient support for research professorships and training fellowships in the clinical research field. There is little incentive for clinicians to train in doctoral programmes, resulting in a very small number of the clinical professoriate having doctoral degrees. The ASSAf Report therefore recommends the creation of a national plan for research capacity development in the clinical sciences (a 'National Clinical Scholars Programme') for undergraduate and postgraduate students, and for junior and senior faculty in clinical research, based on the idea of the PhD as the key driver for progress in this area, as part of the human capital generation project of the Department of Science and Technology's Ten-Year National Plan for Innovation. A target should be set for 500 PhDs to be produced in the clinical research field over the next 10 years, while 30 Research Chairs should be earmarked for clinical sciences. This may be achieved through expansion of the intercalated research year model of selective training of

motivated undergraduates in carefully planned curricula designed to establish a life-long interest in research, re-design of the MMed research component to enhance its effectiveness in research training and competence, and serve as the basis for MD/PhD study, and stimulating PhD degrees for professional graduates through the widening of the necessary opportunity and support mechanisms, including use of modules and learning methodologies from BSc Med Honours programmes.

Notwithstanding the above, the Panel wishes to emphasise that it is advocating a core systemic role for the PhD degree in research training in the clinical sciences, which does not mean that the career opportunities of clinical specialists who are fully capable of executing and leading research should be diminished or constrained

The MRC as the national agency holding the stewardship for clinical research would need to be the prime source of the funding of the necessary bursaries and other support for such a purposeful and coordinated clinical scholars programme. It also needs to become part of a major coordinated effort to increase employment opportunities in the public and private health delivery systems, industry and academia, to ensure that the momentum is sustained and the valuable fruits harvested.

A 'NATIONAL CLINICAL RESEARCH COORDINATING CENTRE' AT THE MRC?

The Report also asks for the creation of a 'National Clinical Research Coordinating Centre' at the MRC to link and coordinate clinical research centres and clinical trials programmes at universities, research councils, government and industry, and to foster collaborative research efforts, training programmes, and research projects aimed at strengthening patient-orientated research. This includes helping to remove policy and regulatory 'roadblocks' like inefficient ethical approval systems, multi-layered regulatory authorities, burgeoning patient costs and high (commercial) pathology charges in the public system. It could also include working towards a national repository of biomedical samples, in collaboration with the National Health Laboratory Service (NHLS). A second possibility is to seek to establish a well-organised 'data management centre' for all MRC research projects and activities, permitting effective data mining and analysis in the future.

There is an obvious resonance between the Report's proposal and the aforementioned 'Clinical Trials Research Initiative' (CTRI), now proposed within the MRC itself.

The difference lies in the narrower conception of clinical research in the latter, restricted to clinical trials and to the activities immediately associated with them. Revitalisation of the much broader area of clinical investigation and 'medical science' is needed to ensure that the common diseases affecting South Africa are properly understood, diagnosed, prevented and treated, and that health care practitioners are trained by a core cadre of clinician researchers with the kind of deep knowledge of disease mechanisms that is fundamental to effective practice.

The MRC Review Panel has thus considered the findings and recommendations of the ASSAf Report very carefully, and matched them with its own assessment of the MRC generally. It believes that the MRC, caught in a dilemma mostly not of its own making, either failed to recognise the problem or to do anything to date about it. The proposed 'CTRI' is a part of the solution (and we provisionally support it), but a much broader approach will be needed to turn the corner, and it is important that the incorrect equating of 'clinical research' with 'clinical trials' does not subvert this urgent agenda.

Ultimately, the Panel believes that a system of 'research for health' must be nurtured from a clinical core competence and capacity, and the MRC is clearly mandated by Parliament to perform this function within the broader NSI, in which its skills are also needed on a number of other fronts, notably the 'Farmer to Pharma' Grand Challenge of the DST's 10-Year Innovation Plan, and the interest of the Department of Trade and Industry ('the dti') in increasing one of the largest areas of foreign direct investment into the country.

We accordingly support the idea of much-increased MRC spending on high-quality clinical research, the establishment of a 'National Clinical Research Coordinating Centre' in a rejuvenated MRC, and the introduction of a 'Clinical Scholars Training Programme' stimulated by a system of appropriate awards for talented young students and graduates who will be following newly designed kinds of new research training opportunities.

The release of the very detailed ASSAf Report at such an opportune time should empower the MRC to seek national funding for a stimulus programme for clinical research, using both the Department of Health and that of Science and Technology as allies. This will be a welcome re-entry of the MRC into the mainstream effort in the country to build a vibrant 'bioeconomy' within a flourishing 'knowledge society'.

RECOMMENDATIONS

1. The MRC should increase its focus and support of clinical research, and seek additional funds to develop a 'stimulus programme' for clinical research using the momentum afforded by the Report on 'Revitalising Clinical Research in South Africa' by the Academy of Science of South Africa.
2. The 'stimulus programme' should include a broadly conceived 'National Clinical Scholars' Programme' conducted in cooperation with higher education institutions, aimed at increasing flows through the entire clinical researcher 'pipeline', and into receiving career structure and opportunities in both the public and private sectors.
3. A 'National Clinical Research Coordinating Centre' should be established with incorporation of the current MRC proposal to create a 'Clinical Trials Research Initiative'. This should work to remove 'roadblocks' of various kinds that impede clinical research and raise the costs and effort to perform it. Other requirements are a national repository of biomedical samples and a database management centre.
4. Government departments such as the Departments of Health, Science and Technology, and Trade and Industry, should assist in revitalising clinical research in South Africa in a concerted response to the Report by the Academy of Science of South Africa.
5. The overall aim should be to restore South Africa's leading position in clinical research as a key contribution to the solution of many problems in the health care system, and a core component of a national 'bioeconomy'.

CHAPTER 7

BENCHMARKING THE SOUTH AFRICAN MRC AGAINST FOREIGN EXEMPLARS

The Brief of the Review Panel included the benchmarking of the South African MRC (henceforth called MRC-SA) against similar institutions elsewhere, in countries with differing degrees of development. We have elected to compare the MRC with its counterparts in the UK (developed country), India (developing country, with middle-income features) and Kenya (developing country).

THE MEDICAL RESEARCH COUNCIL IN THE UK (MRC-UK)

The MRC in the UK started as the Medical Research Committee in 1913 with the primary role being the distribution of medical research funds under the terms of the 1911 National Insurance Act. This was a consequence of a recommendation of the Royal Commission on Tuberculosis, which suggested the formation of a permanent medical research body. In 1920, the Medical Research Committee became the Medical Research Council under Royal Charter. Today, this organisation is dedicated to “improving human health through world-class medical research”, and has become world-famous for a number of medical breakthroughs, such as the development of penicillin, the determination of the structure of DNA, and the establishment of the link between smoking and cancer. The MRC-UK supports research across the biomedical spectrum, from relevant fundamental science to clinical trials, and in all major disease areas, in universities and hospitals, in its own units and institutes in the UK, and in Africa. The MRC-UK gives high priority to research that is likely to make a real difference to clinical practice and to the health of the population.

The MRC-UK is one of seven operationally autonomous (funding) Research Councils in the UK and is accountable to the UK government’s Department for Business, Innovation and Skills (BIS), previously known as the Department for Innovation, Universities and Skills (DIUS). This would be analogous to a combination of the Department of Higher Education and Training (DHET) and the Department of Science and Technology (DST) in South Africa.

The MRC-UK is governed by a council of 14 members, which meets every two months, and directs and oversees corporate policy and science strategy, ensuring that the MRC-UK is effectively managed and makes sound policy and spending decisions. The council, led by a chairperson, with the MRC-UK Chief Executive as deputy chairperson, has 10 and 18 other members, at least half of whom are

appointed on account of their scientific qualifications, drawn from industry, academia, government and the National Health Service (NHS), and appointed by the Secretary of State for Business, Innovation and Skills.

Members of the MRC-UK council chair four specialist boards on specific broad areas of research, which act as MRC-UK funding agencies in each area. A separate ‘Strategy Board’ is responsible for developing, coordinating, overseeing implementation of and evaluating the MRC-UK’s strategic plans, and takes a leading role in developing the overall strategic scientific plans for the MRC-UK, taking into account research strategies both in the MRC-UK and elsewhere, and ensuring that the organisation is responsive to the current and future scientific landscape in the country. A further ‘Training and Development Board’ distributes funding for training medical scientists, whilst yet another ‘MRC(-UK) Management Board’ is responsible for the day-to-day management of the organisation.

The MRC-UK has an affiliated company, MRC(-UK) Technology, which works with industry to translate scientists’ discoveries into new treatments and technologies. The MRC-UK also has an independently managed charity, the Medical Research Foundation, which receives funds from the giving public to support medical research.

The MRC-UK has established four ‘overview groups’ to ensure that the research boards and other funding committees develop coordinated initiatives and activities. The four groups report to the ‘Strategy Board’, with the chair of each serving as a member of the board. Their job is to review the MRC(-UK)’s portfolio across the relevant research boards, identifying potential gaps and opportunities, consulting with the wider research community and relevant stakeholders, and commissioning studies as needed. They also monitor the progress and impact of research board funding, special calls and initiatives, and investment across the spectrum of MRC-UK support. They have a key role in ensuring that national translational and public health priorities are addressed. The groups advise and support research boards, contributing to strategic cross-funder work with the National Institute for Medical Research (*see below*) and other health departments, and helping the MRC(-UK)’s Strategy Board develop future scientific strategy.

The MRC-UK is thus advised by a number of expert advisory bodies, which include the above-mentioned 'research boards' covering the main divisions of the organisation's research portfolio: Infections and Immunity; Molecular and Cellular Medicine; Neurosciences and Mental Health, and Population and Systems Medicine, each made up of senior scientists from all over the UK. Apart from the already mentioned overview groups, there is also the 'college of experts' (1000 or more scientists) responsible mainly through independent peer review of proposals, specific research topics and MRC units, to ensure that research funding is for projects of an internationally competitive quality. There is further an 'Ethics, Regulation and Public Involvement Committee', providing the MRC-UK Council with expert ethical advice on a wide range of issues relating to medical research.

The MRC-UK has a shared service centre that provides procurement, finance and human resources services to the MRC-UK head office and research units and institutes across the UK, with nearly 100 members of staff carrying out transactional work on behalf of MRC-UK activities. The aim of the shared service centre is to achieve efficiencies that release as much of the MRC(-UK)'s financial resources as possible for medical research. The MRC-UK is now working closely with the other UK research councils to develop a joint shared service centre that will soon provide support services to all the research councils.

The MRC-UK owns the intellectual property rights on discoveries made by the scientists employed at its units and institutes, and commercialises these findings by licensing them to industry through MRC(-UK) Technology, an affiliated technology transfer company. This has two major benefits: first, scientists' findings are translated into new treatments and technologies as swiftly as possible, and second, the licensing income can be ploughed back into further medical research.

The National Institute for Medical Research (NIMR) was founded in 1918 and for more than 80 years has been at the forefront of international excellence in basic biomedical research. The Institute has been prominent in identifying and developing scientific breakthroughs that have contributed to the prevention and improved treatment of many serious diseases and increased understanding of human health, recognised through several Nobel Prizes. In 2004, the MRC-UK developed a vision for the renewal of NIMR that promoted the Institute as a world-class, multi-disciplinary biomedical research institute with a mission to undertake both basic and translational research, in partnership with a leading college and teaching hospital in central London.

The MRC-UK has 28 units and three larger-scale institutes in the UK, and two units in The Gambia and Uganda. It also has 22 centres offering partnerships with UK universities to develop centres of scientific excellence. Three 'lifelong health' research bodies were announced in 2008, funded by the MRC, namely the Biotechnology and Biological Sciences (Health) Research Council, the Engineering and Physical Sciences (Health) Research Council and the Economic and Social (Health) Research Council, as part of the Lifelong Health and Wellbeing programme.

The 2009-2014 MRC(-UK) Strategic Plan, takes on the theme of Research Changes Lives, thus emphasising the impact that world-class research has on improving the health and wellbeing of society. Research Changes Lives sets the path for delivering better health and well-being through developing prevention interventions, generating new treatments for diseases, producing well-founded policy guidance for research governance and ethics, and maintaining excellence in the basic research that underpins these activities. This transition will be achieved through four strategic aims: Picking research which is most likely to deliver improved health outcomes; bringing the benefits of research to all sections of society; going global, in international health research; and supporting scientists by sustaining a robust and flourishing environment for world-class medical research.

In terms of its performance in the year 2008/09, the MRC-UK awarded over 400 new grants to researchers in universities, medical schools and research organisations in the UK at a value of over £226 million; spent £68m on training awards for postgraduate students and fellows; supported research units and institutes with £355m.; produced more than 1,300 publications in peer-reviewed journals where the first author was a scientist at an MRC(-UK) unit, institute or centre; increased licensing income receipts to £66.4m, bringing total cash generated since 1998 to £439m, one of the highest rates of return internationally; and .in total spending £704.2 million (nearly R8 billion) on research.

The Review Panel has noted with awe the scope and size of the MRC-UK in comparison with its South African equivalent. The advanced country has an enormous degree of apparent redundancy in its governance and advisory functions, drawing on a vast pool of expertise in the British universities and elsewhere. The country also has a specific 'Academy of Medical Sciences', providing more opportunities for ad hoc advisory panels to address health issues through evidence-based studies and the like.

THE INDIAN COUNCIL FOR MEDICAL RESEARCH (ICMR)

In 1911 the Government of India established the Indian Research Fund Association (IRFA), with the specific objective of sponsoring and coordinating medical research in the country. After independence, the IRFA was re-designated the Indian Council for Medical Research (ICMR) in 1949, with a considerably expanded scope of functions. The Council is now a very significant part of the Indian Department of Health Research with an annual budget of about R 1 billion, and is funded by the Government of India through the latter's parent Ministry of Health and Family Welfare. Its research priorities coincide with national health priorities such as the control and management of communicable diseases; fertility control; maternal and child health; control of nutritional disorders; developing alternative strategies for health care delivery; containment within safety limits of environmental and occupational health problems; research on major non-communicable diseases such as cancer, cardiovascular diseases, blindness, diabetes and other metabolic and haematological disorders; mental health research and drug research (including traditional remedies). These efforts are undertaken with a view to reduce the total burden of disease and to promote health and well-being of the population.

The Governing Body of the Council is presided over by the Union Health Minister and comprises eminent scientists, public health experts as well as elected members of Parliament. The Council is assisted in scientific and technical matters by a Scientific Advisory Board comprising eminent experts in different biomedical disciplines. The Board, in its turn, is assisted by a series of Scientific Advisory Groups, Scientific Advisory Committees, Expert Groups, Task Forces, Steering Committees, etc. which evaluate and monitor different research activities of the Council.

The Council promotes biomedical research in the country through intramural as well as extramural research which, over the decades, has been much expanded by the Council.

The Scientific Advisory Board (SAB) of the ICMR is the highest technical body which reviews the work of ICMR (in its totality) and advises the ICMR on both short-term and long-term research policies, strategies, and thrust areas of research. Each of the ICMR Institutes/Centres also has a Scientific Advisory Committee (SAC) which comprises experts (subject specialists) in the specific areas of research undertaken by the institution concerned. In each case, the full SAC meets at least once

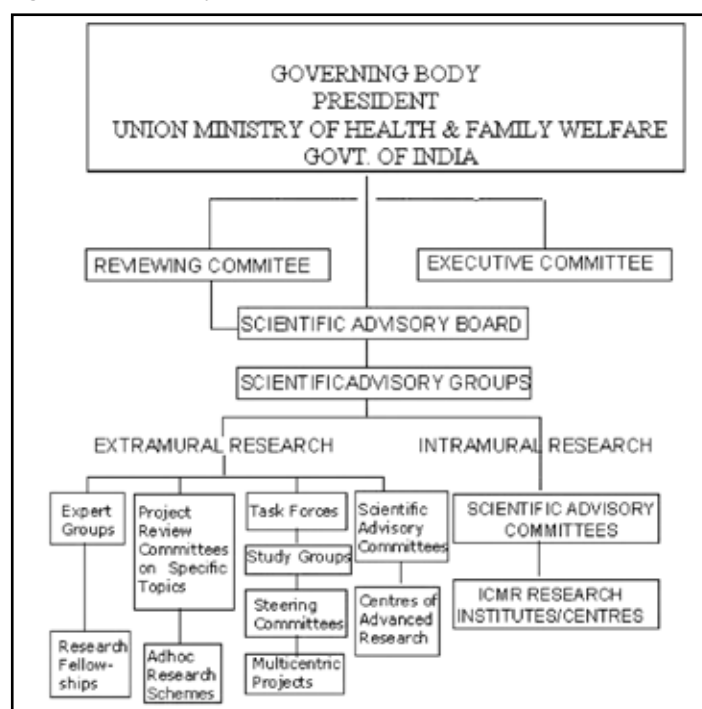
a year while the committee members interact with the Institute throughout the year.

Each of the five 'Technical Divisions' at the ICMR (Epidemiology & Communicable Diseases, Non-communicable Diseases, Reproductive Health and Nutrition, Basic Medical Sciences and Publications & Information) has a further 'Scientific Advisory Group' (SAG) which meets annually and is composed of experts in the respective fields; the SAGs essentially review the extramural activities of the concerned Divisions, and also deliberate on the linkages between intramural and extramural research activities.

The reports of the SACs of Institutes and the SAGs of 'Technical Divisions' of the ICMR are placed before the SAB for its consideration, while the reports & recommendations of the SAB are placed in turn before the Governing Body. Review Committees appointed by the central government looked into the workings of the ICMR from the scientific, administrative and financial angles in the late 1960s and the early 1980s, but the last such body submitted its report in 1984.

Intramural research is carried in the Council's 29 Research Institutes/Centres/Units, which include (i) 18 mission-oriented national institutes located in different parts of India that address research on specific areas such as tuberculosis, leprosy, cholera and diarrhoeal diseases, viral diseases including AIDS, malaria, kala-azar, vector control, nutrition, reproduction, immunohaematology, oncology, medical statistics, etc; (ii) 6 regional 'Medical

Figure 1: Indian Council for Medical Research Governance Structure



Research Centres' that focus on regional health problems, and also aim to strengthen or generate research capabilities in different geographic areas of the country; and (iii) 5 Unit/Centres dealing with food & drug toxicology, viral diseases, microorganisms of a highly infectious nature, prenatal diagnosis of neonatal retardation, etc and the supply of various animal models and feeds for experimental purposes.

Extramural research is promoted by ICMR through 'Centres for Advanced Research' in different research areas built around existing expertise and infrastructure in selected departments of medical colleges, universities and other non-ICMR research institutes. The ICMR also funds task-force studies which emphasise a time-bound, goal-oriented approach with clearly defined targets, specific time frames, standardized and uniform methodologies, and often a multi-centric structure. Open-ended extramural research is conducted on the basis of applications for grants-in-aid received from scientists in non-ICMR research institutes, medical colleges and universities located in different parts of the country.

In addition to research support, the ICMR encourages human resource development in biomedical research through research fellowships, short-term visiting fellowships, short-term research studentships, and various training programmes and workshops conducted by ICMR institutes and headquarters.

For retired medical scientists and teachers, the Council offers positions of 'Emeritus Scientist' to enable such persons to continue or take up research on specific biomedical topics. The Council also awards prizes to Indian scientists, in recognition of significant contributions to biomedical research. At present, the Council offers 38 awards, of which 11 are meant exclusively for young scientists (below 40 years).

In the context of the changing public health scene, the balancing of research efforts between different competing fields, especially when resources are severely limited, is a major problem encountered in the management of medical research in developing countries such as India. Infectious diseases and excessive population growth have continued to constitute the major priorities to be addressed. In addition, research has been intensified progressively on emerging health problems such as cardiovascular diseases, metabolic disorders (including diabetes mellitus), mental health problems, neurological disorders, blindness, liver diseases, hearing impairment, cancer, drug abuse, trauma and accidents, and

disabilities. Research on traditional medicine and herbal remedies has been revived but with a disease-oriented approach. Attempts have been made to strengthen and streamline medical informatics and communication to meet the growing demands and health needs of the community. The Council is alert to new diseases and new dimensions of existing diseases, as exemplified by the rapid organisation of a network of Surveillance Centres for AIDS in different states of India in 1986.

KENYA CONSORTIUM FOR NATIONAL HEALTH RESEARCH

The Consortium for National Health Research (CNHR) is an international not-for profit, non-political, non-sectarian, non-partisan organization which brings together key players in health research in Kenya, including health institutions, universities, research institutions, government agencies, non-governmental organizations and other research groups concerned with health in the country. The CNHR was established about three years ago with the sole purpose of addressing a broad spectrum of issues affecting health research, including research coordination, prioritisation of research activities, training, strengthening the legislative environment, and enhancing the sharing of knowledge, in order to strengthen the capacity of health research in Kenya. The mission of the Consortium is to institutionalise health research in Kenya through a sustainable national mechanism that promotes the production, analysis, storage, archiving, synthesis, packaging, sharing and use of relevant high quality health research and technology.

All work assisted by the Consortium is extramural, and no in-house units or institutes have been established to date.

The main objective of the Consortium is to improve the quality of health in the country through the promotion of quality research; encouraging the practice of evidence-based health policy formulation to improve health care and its delivery; building the research capacity of Kenya's talented youth; and creating functional strategic partnerships. It offers support in the form of multidisciplinary research training (internships, postgraduate and post-doctoral bursaries, workshops and scientific conferences), provision of a regulatory framework for health research, establishment of a 'knowledge repository', and upgrading of infrastructure.

The CNHR Secretariat is small, headed by a Director whose key role (supported by senior management) is to provide scientific, administrative and financial leadership

towards achievement of the Consortium's Mission.

The Council of Founder Members (COFM) comprises representatives from major institutions involved in health research which were involved in the 'Health Research Capacity Strengthening Initiative' of Kenya. They act as the gate-keepers of the consortium to ensure that the vision grows to fulfil the objectives. The COFM is the custodian of the CNHR's fixed assets and property; approves the appointment of the Consortium's auditors' and legal advisor; and approves the budgets and audited accounts.

The Board of Management (BOM) consists of 11 individuals from among whose number a chairperson, an honorary secretary and an honorary treasurer is elected; the Director is an ex-officio member with no voting rights. The Board of Management is the policy-making organ of the CNHR and is responsible for formulating and proposing policy decisions to the Annual General Meeting (AGM) and to implement policies and decisions made at the AGM; for reviewing and approving the strategic plans of the Consortium; recruiting the Director of the Consortium and its management staff, supervising the activities of the Director and of the Consortium as a whole, convening board meetings on a quarterly basis, recruiting staff of the management team; reviewing staff conditions of service, and setting up task forces or ad hoc committee as may be necessary.

The Committees of the Consortium include a Programme Management Committee (PMC), an Expert Scientific Advisory Committee (ESAC) composed of 12 experienced scientific/protocol reviewers and meeting twice a year, an External Programme Evaluation Team (EPET) responsible for reviewing the Consortium program at inception, mid-term and end-stages (years 1, 3 and 5) in order to assess its quality and relevance, and advise appropriately. The team consists of 5 prominent members of the scientific community, two from Kenya, one from the region, and two who are from further afield. The Members are appointed by the Board of Management.

The Consortium is still at an incubation stage, and was until recently receiving support in Kenya from the IDRC (International Development Research Centre) of Canada.¹⁶ The Consortium has also been funded through a £21 million partnership between the Wellcome Trust, the UK's Department for International Development (DFID) and the IDRC of Canada. The aim of the support has been to strengthen the capacity for the generation of research-based knowledge in health, and to improve its use in evidence-based decision making, policy formulation and implementation over the next five years. No support from the government of Kenya has been provided so far. Our findings in respect of the MRC-equivalents in the

three selected comparator countries are summarised in the following Table 1. The lessons more-or-less common to all of them are:

- There is a broad similarity in the way in which the three foreign medical/health research organisations and the South African Medical Research Council are governed and advised, and support extramural research. All but the Kenya Consortium also have extensive intramural research activities. The complexity and scope of each system is roughly proportional to the 'development status' of the country concerned.
- Governance at the top level tends to be multi-stakeholder, including government, business and health service representatives, as well as senior health-science experts of various kinds.
- Extensive use is made of 'Scientific Advisory Committees/Boards', both at the integrative and distributed levels, comprising a variety of senior perspectives in health/medical research.
- The emphasis is on 'medical/health' research, roughly equating to the focus we are suggesting for the South African MRC, as part of a national 'research for health' model (Chapter 2).
- Translation and innovation, as well as ethics functions are delegated to specialist committees.
- Capacity building is a constant refrain, even in advanced economies.
- There is much soul-searching about the balance between intramural and extramural research activities, in the three cases where both are present.
- National 'burdens of disease' and health-risk assessments loom large in priority-setting agendas.
-

Some individual lessons are:

- The formalisation and recognition of peer reviewer roles in a 'college of experts/peer reviewers' based on track records in both science and review work well-performed (UK);
- Dividing up advisory teams into major areas helps them to achieve focus (UK);
- Having chairpersons of divisional advisory committees sit on the senior policy-making board (UK);
- Appointing retired but capable scientists into 'emeritus positions' (India),
- Awarding research prizes (India); and
- Seeking to create a 'knowledge repository' of health research projects and publications (Kenya).
-

Most of these ideas have been taken up in our recommendations in the preceding chapters.

Table 1: Comparison of Key Features of Medical Research Councils

MRC-UK		ICMR		CNHR		MRC-SA	
FEATURE	MRC-UK	ICMR	MRC-UK	CNHR	MRC-SA	ICMR	MRC-SA
Mission	<p>The MRC's mission, as set out in the Royal Charter, is to:</p> <ul style="list-style-type: none"> • Encourage and support research to improve human health. • Produce skilled researchers. • Advance and disseminate knowledge and technology to improve the quality of life and economic competitiveness of the UK. • Promote dialogue with the public about medical research. 	To promote better health in India through research.	To institutionalise health research in Kenya through a sustainable national mechanism that promotes production, analysis, storage, archiving, synthesis, packaging, sharing and use of relevant high quality health research and technology.	To improve the nation's health and quality of life through promoting and conducting relevant and responsive health research.			
Current broad research focus areas	<p>Resilience, repair and replacement:</p> <ul style="list-style-type: none"> • Natural protection • Tissue disease and degeneration • Mental health and wellbeing • Repair and replacement <p>Living a long and healthy life</p> <ul style="list-style-type: none"> – Genetics and disease – Life course perspective – Lifestyles affecting health – Environment and health 	<ul style="list-style-type: none"> – Epidemiology and Communicable Diseases – Basic Medical Sciences – International Health Division – Medicinal Plants Unit – Non-Communicable Diseases – Reproductive Health & Nutrition 	<p>Research activities funded through CNHR are largely guided by national priorities in health sector plans. To this end, the CNHR supports research that addresses health related researchable issues that are highlighted in the Government's strategic plans for the health sector, or related to the Millennium Development Goals (MDGs) 4, 5, and 6 as well as the vision 2030.</p>	<ul style="list-style-type: none"> • HIV and AIDS (including SAAVI) • Tuberculosis • Malaria • Cancer • African Traditional Medicine and Drug Discovery • Genomics, proteomics and computational biology • Nutrition • Crime, violence and injury • Women, maternal and child health • Cardiovascular and metabolic diseases • Mental health and functional disorders • Policy and implementation 			
Size of research operations	<ul style="list-style-type: none"> • 28 units, 3 institutes in the UK and 2 institutes in the Gambia and Uganda • 22 Centres offering partnerships with UK universities to develop Centres of Scientific Excellence • 3 lifelong health research centres 	<ul style="list-style-type: none"> • 27 intramural research institutes/ centres/ units including: <ul style="list-style-type: none"> – 21 permanent national research institutes – 6 regional medical research centres • Extramural research <ul style="list-style-type: none"> – Centres for advanced research in select medical colleges and universities – Task force studies 	<p>The consortium has only recently been constituted and is still at the incubation stage.</p>	<ul style="list-style-type: none"> • 41 research units, groups and lead programmes comprising <ul style="list-style-type: none"> – 19 intramural units and research platforms – 21 extra-mural divisions • 3 national collaborative research programme projects • MRC self initiated and developmental research • 5 Research technology entities • 1 Biotechnology programme • 8 commercial entities 			

FEATURE	MRC-UK	ICMR	CNHR	MRC-SA
Governance structures	<ul style="list-style-type: none"> MRC Council governing body Strategy Board responsible for developing, coordinating, overseeing implementation and evaluating the MRCs strategic plans Advisory bodies to ensure that processes are fair and that appropriate, high quality research is conducted under ethical principles. Advisory bodies include: <ul style="list-style-type: none"> Research boards to manage and review scientific activity Overview groups to ensure that the Research boards and other funding committees develop coordinated initiatives and activities College of experts responsible for ensuring that funded research is of an internationally competitive quality Ethics, regulation and public involvement committee Management board for day-to-day management of the organisation 	<ul style="list-style-type: none"> Governing body presided by the Union Health Minister Scientific advisory board is a technical body which reviews the work of the ICMR Scientific advisory committee comprising experts or subject specialists pertaining to research undertaken by a specific institute/ centre Scientific advisory group that is focused on each of the five Technical divisions of the ICMR and comprises experts in the respective fields. 	<ul style="list-style-type: none"> Council of Founder Members of representatives from major institutions involved in health research and which were involved in the Health Research Capacity Strengthening Initiative, Kenya. The COFM act as the gate-keepers of the consortium to ensure that the vision grows to fulfil the objectives. Board of Management which is the policy making organ of the CNHR Programme management committee Expert scientific advisory committee involved reviewing concept papers and full proposals submitted to the Consortium for consideration and funding. External programme evaluation team for reviewing the Consortium program at inception, themed-term and end of project to assess the quality and relevance of the Consortium's program and advise appropriately 	<ul style="list-style-type: none"> MRC Board responsible for managing and controlling the affairs of the MRC Executive Management Committee subject to directives and control of the Board, responsible for the management of the affairs of the MRC. Committees of the Board Operations team that is responsible for implementing and operationalising strategy within the MRC

CHAPTER 8:

THE SOUTH AFRICAN MRC – THE NEXT FIVE YEARS

The Review Panel has striven to meet its brief as comprehensively as is possible through the preceding six substantive chapters of this Report. It recognises that the depth of the insights it obtained from scrutiny of MRC and other documentation and from interviews with a variety of MRC personnel and members of other organisations has necessarily been limited by the time available and the enormous scope of the task. But it hopes that the findings and recommendations of each chapter will bear careful consideration by all those who believe that research is a productive way to address national problems and that 'research for health' is an especially important component of that belief.

Nothing we have found or written in this Report takes away from the fact that the MRC is both a necessary and a valuable national asset. Forty years of relatively small public investment and relatively substantial achievement make that so. Our effort has been to document the present difficulties and lack of cohesion in the organisation that are impairing its functioning and lowering the size and scope of its potential contribution. We have sought throughout to make recommendations that would effectively address these problems and point to a better future.

Our vision is one of a re-focused MRC, with a new Board, a new President, a new Act, and a new Strategic Plan, re-embedded in the comprehensive national effort to create a just and prosperous 'knowledge economy' in which the good health of all its people is prioritised. Although in our view the realisation of this vision is achievable, our numerous proposals for attaining it may often be unlikely to succeed because of an uncertain operating environment. The proclaimed policies and programmes of the state, aimed squarely at transforming the country into a "developmental state" with a 'high-tech' future, are encumbered by numerous unsolved developmental issues. The economic, social, political and technological needs are great, the demands for delivery of basic services are insistent, and the prevailing inequities [with the highest Gini coefficient in our history] are unconscionable. Over more than 15 years of independence the government and its agencies have struggled to reach a balance among competing needs and between contested economic alternatives. The challenge for a government in such difficult circumstances is to know what investments to make to keep the dream of freedom and health-for-all

alive, while making critical choices and finding optimal solutions to forge a vast array of complex social and economic forces constituting our people into a solid, coherent, integrated and equitable society.

We recommend that public investment in a newly energised MRC is one such wise choice. A dynamic research organisation that determines the most cost-efficient strategies for the promotion of public and personal health and uses resources cost-effectively to grow relevant skills and people, will significantly advance the goal of creating a "developmental state". The greatest benefits will accrue to the country if the MRC's resources are judiciously directed to our higher education institutions in the main, and balanced by more restricted investment in a set of well-chosen and –structured intramural units. Few other investments will be able to achieve similar objectives and goals at such a low overall cost. This will not happen if the system is allowed to remain fragmented and the MRC, a high-potential component, continues to be largely sidelined in terms of the major national investments being strategically made by government.

An increase in the baseline funding of the MRC by government is essential. One of the advocacy challenges will be to make sure that the annual reports of MRC operations in the National Treasury are of a maximally cost-effective organisation in which all available resources are made to work optimally, at the macro- and micro levels. We hope that our Report's reception will make it more likely that increased investment in the MRC will in fact be seen in the coming years.

The Panel is concerned that the basic human resource model for the 'whole' MRC is both unfair and inappropriate. Some kind of matching between the '5-10-?15' year' life cycle of MRC extramural research units and the employment contracts of intramural MRC scientists needs to be achieved. This is especially cogent for an organisation that has already tacitly imposed such restricted contracts/conditions on its extramural units. The solution of this (partially moral) problem, sooner rather than later, is crucial to the MRC's future.

One of the big challenges of the MRC is to promote

'consilience' in its research programmes, the scientific 'worldview' that regards nature and society as one reality.¹⁷ The human tendency in contrast is to establish different, vertical and often fragmented 'disciplines' which, while they may be more utilitarian, are also simultaneously barriers to insight and progress. The domains of 'biomedical' science, 'clinical' science, 'social' science and 'human science' have been deeply mined, but the high ground between them is still full of nuggets waiting to be discovered and put to use. Reality (and our daunting developmental problems) comprises all of these disciplines, not just some fragments within it. Whether an MRC of the future can succeed in reaping a rich harvest from a consilient approach to an integrated and yet practical approach to "research-for-health" will depend on intellectual leadership and a culture of ideas which is encouraged to blossom among its scientists and in its institution.

Consilience is also at the heart of the need for better interactions and collaborations between the MRC, its sister science councils, and the institutions of higher education. The principle of 'Research for Health' makes such networking a winning formula.

The 'brand' of the MRC is still burning brightly nationally and globally, as demonstrated by its continuing ability to create and sustain partnerships with world-class organisations. But it has come close to losing its shine. Morale at the coalface is perilously low. When the MRC's governors (the Board), the executives (the EMC), internal research leaders (intramural unit directors), external research leaders (extramural unit directors) and young scientists are as much at odds with each other, as is the case currently, all is not well. Great danger is indeed present and lies ahead, and appropriate remedial action is urgently required.

The MRC styles itself as the 'leading health research organisation in Africa'. We think it certainly can be, if the leadership is revitalised to become effective, willing and determined, the staff is suitably motivated, imaginative and productive, and the state is sufficiently supportive. We hope our Report provides the ideas and indicates the ways to fulfilling the highest of the MRCs goals; and for turning this temporary pause in productivity and internal dissension into an escalating future of achievements for the attainment of better health for all.

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ANNEXURE A: FULL TERMS OF REFERENCE FOR THE SETI REVIEW

The specific questions directed to the Review Panel were later adapted to yield the following (see *Chapter 1*):

- Is the South African Medical Research Council functioning optimally and meeting its current mandate?
- More specifically, is the South African Medical Research Council, given its funding infrastructure and resources, producing outputs to match the resources expended? This needs to include an evaluation of the quality of its science and technology base (human capital and infrastructure); and the quality and scale of its outputs, outcomes and impact (including the productivity of its research base and the effectiveness of its technology or knowledge transfer functions) and the value received for public money expended
- *What should the output indicators be? Can they include scientific publications, contribution to policy positions/briefs, capacity strengthening, production of patents and IP, etc.?*
- *Is the mandate of the MRC appropriate for South Africa?*
- Is the MRC responding to the needs of South Africa regarding health and medical sciences – how do we measure this?
- How do MRC lead programmes such as SAAVI, IKS and Traditional Medicines, etc stand up to review?
- How well does the MRC benchmark against similar institutions in upper- and middle- income countries, and countries in the developing world?
- Is the MRC Act of 1991 still appropriate to current South Africa? Should MRC continue with commercialization or this function should be transferred to a relevant agency to release MRC to focus on research and development? Is MRC Act aligned to other Acts such as PFMA, IPR, Technology Innovation Act, etc.?
- What is the interaction between the MRC and other science councils, such as the NRF, CSIR, HSRC and TIA?
- Is the MRC executive appropriately skilled and structured to ensure an effective institution?
- What is the decision-making framework of MRC? Is it effective?
- Is the MRC's planning for the future optimal? Are the vision and goals for the future clear and attainable? To what extent?
- Is it competitive in world terms, given the changing nature of its funding streams and the broader developments within the National System of Innovation (including the cost of research and the demands of its funders)?
- What is its financial sustainability and the strength of its support services (such as finances, communications, human resources and support services)
- What are the main strengths and main weaknesses of the MRC at present?
- What have the main achievements been since the last SETI Review regarding various indicators, including the pace and extent of its transformation, e.g. capturing, building, empowerment of women, black scientists, etc.?
- What progress has the MRC made in addressing the issues raised by the previous two Reviews?
- Is the MRC's access to information policy suitable to the South African context?
- What links exist and how close are these between the MRC and government in provinces?
- What support does MRC provide to Research Ethics Committees overseeing health research, especially clinical trials?
- What support/collaboration do academic institutions have or receive from MRC? What portion is received by "previously disadvantaged" institutions in relation to that received by "previously advantaged" institutions? Of what nature are the collaborations?

ANNEXURE B: REVIEW PROGRAMME

SUNDAY 30 MAY

TIME	ACTIVITY	LOCATION	COMMENTS
08h00 –	Arrival	Cape Town	
14:00	Board Exco and EMC meets	Courtyard Mowbray – Venue 1	Approx. 3 Hours
15h00- 18.00	Briefing by chairperson; consideration of general SETI review objectives; discussion of TOR; discussion of work schedule and assignments; consideration of documentation; process issues; opening discussions	Courtyard Mowbray – Venue 2	Review Team plus Dr Gumbi (scribe)
19:00	DINNER	Courtyard - Mowbray	Board Exco Dinner only (Separate but in same venue)
18h30	DINNER	Courtyard - Mowbray	Reviewers Dinner only (Separate but in same venue)

MONDAY 31 MAY

TIME	ACTIVITY	LOCATION	COMMENTS
08h30 – 12h30	Further document review and preparation for interview sessions	Venue: MRC Boardroom, 2nd Floor Building A	
	Document review and preparation continues	Venue: MRC Boardroom, 2nd Floor Building A	
11h00 – 12h00	Bongani Mayosi	Venue: MRC Boardroom, 2nd Floor Building A	
14h00 – 17h00	Review team meets MRC Board ExCo	MRC Office – Cape Town Venue: MRC Boardroom, 2nd Floor Building A	
19h00	DINNER	Courtyard - Mowbray	Review Panel, MRC Board ExCo and EMC

TUESDAY 1 JUNE

TIME	ACTIVITY		LOCATION	COMMENTS	
08h00 – 09h00	Interview: Acting President		MRC Cape Town (EMC Room)	Ali Dhansay	
09h00 – 10h00	Interview: EMC		MRC Cape Town (EMC Room)	EMC Members	
10h00 – 11h00	Interview: CFO		MRC Cape Town (EMC Room)	Bulelani Mahlangu	
11h00 – 12h00	Interview: Human Resources		MRC Cape Town (EMC Room)	Zukile Vokwana	
12h00 – 13h00	Interview: Technology & Innovation		MRC Cape Town (EMC Room)	Petro Terblanche	
13h00 – 13h45	LUNCH				
13h45 – 14:45	Research Coordination		MRC Cape Town (EMC Room)	Sandile Williams & Niresh Bhagwandin Prof Petro Terblanche	
14h45 – 15h45	Parallel Sessions		MRC Office – Cape Town	Parallel Sessions	
	Session 1 (half-panel A) (Boardroom)	Session 2 (half-panel B) (EMC Room)		Session 1 (Boardroom)	Session 2 (EMC Room)
	Centre for Molecular & Cellular Biology Medical Imaging Research unit Anxiety & stress Disorder Research Unit	Diabetes Discovery Platform Malaria Research Unit SAAVI Oesophageal Cancer Research Unit		Paul van Helden Tania Douglas Dan Stein / Soraya Seedat	Johan Louw Raj Maharaj Elise Levendal Igbal Parker
15h45 – 16h45	Human Science Research Council		MRC Cape Town (EMC Room)	Head of Research	
16h45 – 17h15	Representatives from the Committee of Deans (Tentative: Prof Bongani Mayosi head of Medicine of UCT)		MRC Cape Town (EMC Room)		
16h45 – 18h30	Debriefing and finalisation of next day's activities				
19h00	DINNER		Courtyard - Mowbray	Reviewers Only	

WEDNESDAY 2 JUNE

TIME	ACTIVITY		LOCATION		
08h00 – 09h00	Primate Unit Nutrition Intervention Research Unit Chronic Diseases of Lifestyle Research Unit		MRC Office – Cape Town EMC Room		Jurgen Seier Pieter Jooste Jean Fourie
09h00 – 10h00	Alcohol, Drug Abuse Research Unit Clinical & Biomedical TB Research Unit Gender & Health Research Group Safety & Peace Promotion Research Unit		MRC Office – Cape Town EMC Room		Charles Parry Roxana Rustomjee Rachel Jewkes Prof Kopano Ratele
10h00 – 11h00	Biostatistics Research Unit Burden of Disease Research Unit Cochrane Centre		MRC Office – Cape Town EMC Room		Carl Lombard Debbie Bradshaw Nandi Siegfried / Jimmy Volmink
11h00 – 11h15	TEA				
11h15 – 12h15	IKS Lead Programme Oncology Research Unit Health Systems Research Unit	Exercise & Sports Medicine Research Human Genetics Research Unit Receptor Biology Research Unit	MRC Office – Cape Town EMC Room		Gilbert Matsabisa Vikash Sewram Charles Hongoro Tim Noakes Raj Ramasar Arieh Katz
12h15 – 13h15	PROMEC Innovation Centre TB Epidemiology & Intervention Research Unit		MRC Office – Cape Town EMC Room		Wentzel Gelderblom Tony Bunn Martie van der Walt –
13h15 – 14h00	LUNCH				
14h00 – 14h30	Unit Directors Forum				Unit Directors Forum Representatives
14h30 – 15h00	Young Scientist Forum				Itumeleng Funani & Kombolani Shongwani
15h30	DEPART FOR PRETORIA			Board 17:00 flight	

THURSDAY 3 JUNE

TIME	ACTIVITY	LOCATION		
08h30 – 09h30	DST	DST - Pretoria		
09h30 – 10h30	CSIR	DST - Pretoria	Dusty Gardiner	
10h30 – 10h45	TEA			
10h45 – 11h45	NRF	DST - Pretoria	Gansen Pillay	
11h45 – 12h45	Parallel Session		Parallel Session	
	Session 1(Half-panel C)	Session 2 (Half-panel D)	DST - Pretoria	Session 1 Session 2
	<ul style="list-style-type: none"> Environmental Health Research Unit Molecular Mycobacteriology Research Unit Bone Research Unit 	<ul style="list-style-type: none"> Inflammation & Immunity Research Unit Respiratory & Meningeal Pathogens Research Unit Diarrhoeal Pathogens Research Unit 	DST - Pretoria	Angie Mathee Valerie Mizrahi Ugo Ripamonti Leticia Rispel Ronnie Anderson Shabir Madhi Jeff Mphahlele
12h45 – 13h30	LUNCH			
13h30-14h00	Shuttle to NDoH			
14h00 – 15h00	NHLS (NICD, NIOH)	NDoH - Pretoria		
15h00 – 16h00	NDoH	NDoH - Pretoria		
	DINNER		NDoH, DST and other Science Councils	

FRIDAY 4 JUNE

TIME	ACTIVITY	LOCATION	
08h30 -	Debriefing and report writing	At Casa Toscana - Pretoria	
17.00	Review Ends		

ANNEXURE C: SHORT BIOGRAPHIES OF PANEL MEMBERS

Prof Wieland Gevers

Professor Wieland Gevers was born in Piet Retief in 1937, and graduated at UCT with First Class Honours in Medicine in 1960. As a Rhodes Scholar, he completed a D Phil degree at Oxford University in 1966, supervised in metabolic studies by the 1953 Nobel Prize winner, Sir Hans Krebs. He then held a post-doctoral Fellowship with a second Nobelist, Dr Fritz Lipmann, at the Rockefeller University in New York from 1966 to 1970, discovering the nature of the polymerisation mechanism involved in the biosynthesis of peptide antibiotics. He returned to South Africa in 1970, and was Professor of Medical Biochemistry at Stellenbosch University from 1971 to 1977, during which time a firm foundation was laid for the present MRC Centre for Molecular and Cellular Biology and the subsequently established DST/NRF Centre of Excellence in Molecular TB studies. He moved back to UCT as Professor of Medical Biochemistry in 1978, directing two successive MRC Units over a 15-year period. He was Senior Deputy Vice-Chancellor responsible for planning and academic process at the University of Cape Town from 1992 until the end of 2002. During this time, he represented all SA universities on the South African Qualifications Authority, SAQA, and during 2001-2 was Acting Chairman of the Education Committee of the South African Universities' Vice-Chancellors Association. He was (founder) President of the South Africa Biochemical Society from 1975-6, President of the Royal Society of South Africa from 1987—1989, and President of the Academy of Science of South Africa from 1998 until 2004.

Prof Gevers has been awarded the Wellcome Gold Medal for Medical Research; the Gold Medals of the South African Society for Biochemistry and Molecular Biology, the South African MRC, and the Southern African Association for the Advancement of Science; the M T Steyn Medal of the Suid-Afrikaanse Akademie vir Wetenskap en Kuns; and the 2009 Medal Lecture of the Academy of Sciences of the Developing World (TWAS). He was admitted to the National Order of Mapungubwe in silver in 2008. Gevers after formal retirement in 2002 took up an appointment until early 2005 as the Interim Director of UCT's new Institute of Infectious Disease and Molecular Medicine (IIDMM). He was from 2005 until 2008 the Executive Officer of the Academy of Science of South Africa, and is now General Secretary of the Academy, as well as Chairman of its Committee on Scholarly Publishing in South Africa.

Prof Hoosen Coovadia

Prof Hoosen Coovadia is a member of the National Planning Commission. He is currently the Director: HIV Management; University of the Witwatersrand: Maternal Adolescent Child Health Unit [MatCH], previously known as RHRU. He has published leading papers on the basic science and pathogenesis, clinical management, epidemiology, prevention, and contextual factors, for the major causes of morbidity, disability and mortality, among Africa's children.

Professor Coovadia became a specialist paediatrician in South Africa [1971], and an immunologist in the United Kingdom [1974-1975] and at the Walter and Eliza Hall for Medical Research, Melbourne, Australia [1979], after qualifying as a medical doctor in Bombay [1965]. The restrictions on people of colour in apartheid South Africa had led to his turning down admission for medicine at the University of Cape Town, and proceeding to India. He was [from 2003 to 2008] the Scientific Director of the Doris Duke Medical Research Institute which is busy establishing itself as the premier centre for HIV/AIDS research in the developing world. This centre arose from a highly productive collaboration between the candidate and Bruce Walker from Harvard University and Philip Goulder from Oxford University, both at the forefront of global AIDS research. He has trained numerous paediatricians, mostly of colour, and many in private practice, in the country. He has been employed as a clinical and an academic paediatrician at different positions in the Durban Hospital [King Edward VIII] and at the University of Kwazulu/Natal. He served as head of Paediatrics and Child Health for 10 years [1990-2000]. He has served in various positions within the Medical Research Council of South Africa [MRC, SA], in University, at provincial and central government [after 1994], and in UNAIDS/WHO Committees. The focus in these bodies has been on research appropriate for resource-poor countries, education and training at tertiary level, and delivery of appropriate health services for a country emerging from the ravages of racial/colonial oppression. He is the International Vice-Chair of a newly constituted NIH Network on the formulation of programmes, distribution of funds, and monitoring and evaluation of studies on HIV research in mothers and children. He holds editorial positions on AIDS, Journal of Tropical Paediatrics [ceased], Annals of Tropical Paediatrics, South African Medical Journal, South African Journal of HIV, and The International Journal of Tuberculosis and Lung Disease

and reviews papers for some of these journals, and regularly assesses proposals from the Wellcome Trust and other agencies. He was the chair of the prestigious XIIIth International AIDS Conference held in Durban, South Africa in 2000; generally accredited to be a landmark event in the landscape of AIDS, which internationalised the demand for AIDS drugs and prevention services accessible to the poor in the developing countries; he is an African representative on the International AIDS Society [200-2008], and also Chairperson of Dira Sengwe, a non-profit organization which sponsors biennial AIDS Conferences in South Africa, where a third of attendees are from Africa. He is the recipient of many awards, including a Silver Medal for Research from the MRC, SA [1999]; the Order of the Star of South Africa from President Nelson Mandela for Health [1999]; the Nelson Mandela Award for Health and Human Rights [co-recipient with Judge Edwin Cameron][2000]; Science for Society Gold Medal from the Academy of Science of South Africa [2004]; and the Medical Award of Excellence from the Ronald McDonald House of Charities; and honorary doctorates (DSc) from the Universities of Witwatersrand[2003], Durban Westville [1996] and Cape Town (2010). He is an Honorary Fellow of the Royal Society of Tropical Medicine and Hygiene [2005], and one of few South Africans who is a Foreign Member of the highly regarded Institute of Medicine [USA]

Prof Nelson K Sewankambo

Dr. Nelson K Sewankambo is Professor of Medicine, Principal of the Makerere University College of Health Sciences, and the Chair, Board of Infectious Diseases Institute, Makerere University. He is also Vice President of the Accordia Global Health Foundation, a Council member for the Global Forum for Health Research, and a Director of the African Initiative on Climate Change. He did his medical training at Makerere Medical School, specialized in internal medicine, and later graduated in Clinical Epidemiology at McMaster University in Canada, later receiving an Honorary Doctor of Laws from the same University. He is a Fellow of the Royal College of Physicians in UK. He served as Dean of Makerere Medical School for 11 years and is an active researcher on AIDS and knowledge translation. He is a member of a number of national and international committees including most recently the Institute of Medicine committee on the 'U.S Commitment to Global Health', FAIMER, and 'The Initiative to Strengthening Health Research Capacity in Africa' (ISHReCA).

Dr Rajat Goyal

Dr Goyal heads the IAVI India country office where he provides strategic direction to the country programme. The India program has garnered strong national- and state-level support and has an extensive program of information dissemination, community involvement and AIDS vaccine trial site preparedness activities. Previously he worked as Vice President at ICON Clinical Research where he was responsible for managing ICON's Clinical Operations in the Asia-Pacific Region. Prior to being at ICON, he was the Global Project Director for Advancing Rotavirus Vaccine Development (ARVAC) Project at PATH where he was responsible for a wide range of new vaccine and other health technology product development. He was also responsible for developing and managing viable public private sector partnerships for sustainable, culturally ethical and adaptive health interventions, influencing policymakers and enabling communities. Before joining PATH, Dr. Goyal was the Vice President of Reliance Industries Limited (RIL) heading the Reliance Clinical Research Services (RCS) in Mumbai, India; and before that the Medical Advisor with Dabur India Ltd, a leading oncology product manufacturer in India. During his tenure at Reliance and Dabur, he was responsible for conceptualizing, implementing and managing applied research program including clinical development for the complete life cycle of a biopharmaceutical product from molecule to marketing and introduction. Dr. Goyal received his basic medical degree from King Edwards Memorial Hospital in Mumbai. He specialized as a hemato oncologist. In addition, he was a research fellow at Rush Cancer Institute in Chicago and a visiting fellow at Beth Israel Hospital in Boston and Royal Marsden Hospital in UK.

Prof Gopalan 'Nicky' Padayachee

Prof Gopalan 'Nicky' Padayachee is currently Deputy Director-General in the National Department of Health in South Africa. He is also the President of the Health Professionals Council of South Africa.. He was the immediate past Dean of the Medical School of the University of Cape Town and before that was the Chief Executive Officer (CEO) of the Greater Johannesburg Metropolitan Government. He graduated as a medical doctor from University of Cape Town, and obtained his Specialist Degree in Public Health Medicine from the University of Witwatersrand, Johannesburg. He was President of South African Epidemiology Society and Medical Officer of Health and Town Clerk of the City of Johannesburg, He was a Professor of Community Health in the Faculty of Medicine and Public Management of the Faculty of Commerce both at WITS, Professor of Behavioural Science at Emory in Atlanta, and Professor

of Community Health at UCT. He is currently Professor of Public Health at the University of Johannesburg. He has received numerous awards, including an Honorary Fellowship in Public Health Medicine from the Colleges of Medicine of South Africa.

of Health, where she was responsible for Health Research Co-ordination.

Ms Glaudina Loots

Glaudina Loots is the Director for Health Innovation at the Department of Science and Technology in South Africa; she concentrates on enabling research and innovation that leads to discovery and evaluation of new drug and treatment regimes, the development of new vaccines and new robust diagnostics for the identified diseases or conditions, as well as the development of medical devices. Her current responsibilities include the development of a Health Innovation Strategy for South Africa.

The range of research activities that Ms Loots encourages as part of her portfolio include the interrogation of indigenous knowledge, basic molecular science and genetics, chemistry and bio-chemistry, biotechnology, nanotechnology, nuclear physics, ICT, manufacturing processes and engineering.

Until 2008, Ms Loots was also responsible for the South African Women in Science Awards, as well as addressing issues pertaining to gender and disability in the Science, Engineering and Technology sector in South Africa. She also acted as a strategic advisor to the University of Limpopo and the International AIDS Vaccine Initiative and is actively involved in the activities to establish the African Network for Drug and Diagnostic Innovation. She also served on the Medical Products task team of the Minister of Health in 2009, and currently is on the Interdepartmental Task Team for the local manufacturing of ARV APIs.

Prior to joining the Department of Science and Technology, she worked in the private sector and was involved in health systems research projects; she was also involved in project management for emergency medical services and related products – including a stint as the Marketing Manager for one of the private Emergency Medical companies in South Africa.

Before her foray into the private sector, Ms Loots was the Health Sector Co-ordinator for the National Research and Technology Foresight project of the (then) Department of Arts, Culture, Science and Technology -- she was recruited into this position from the National Department

ACRONYMS AND ABBREVIATIONS

<i>AGM</i>	<i>Annual General Meeting</i>
<i>ARC</i>	<i>Agricultural Research Council</i>
<i>ASSAf</i>	<i>Academy of Science of South Africa</i>
<i>BOM</i>	<i>Board of Management</i>
<i>CEO</i>	<i>Chief Executive Officer</i>
<i>CNHR</i>	<i>Consortium for National Health Research</i>
<i>COFM</i>	<i>Council of Founder Members</i>
<i>CSIR</i>	<i>Council for Scientific and Industrial Research</i>
<i>CTRI</i>	<i>Clinical Trials Research Initiative</i>
<i>DFID</i>	<i>Department for International Development</i>
<i>DHET</i>	<i>South African Department of Higher Education and Training</i>
<i>DST</i>	<i>Department of Science and Technology</i>
<i>EMC</i>	<i>Executive Management Committee (MRC)</i>
<i>EPET</i>	<i>External Programme Evaluation Team</i>
<i>ESAC</i>	<i>Expert Scientific Advisory Committee</i>
<i>HHMI</i>	<i>Howard Hughes Medical Institute</i>
<i>HIV/ AIDS</i>	<i>Human Immunodeficiency Virus/ Acquired Immune Deficiency</i>
<i>HR</i>	<i>Human Resources</i>
<i>HSRC</i>	<i>Human Sciences Research Council</i>
<i>HST</i>	<i>Health Systems Trust</i>
<i>ICMR</i>	<i>Indian Council for Medical Research</i>
<i>ICT</i>	<i>Information and Communication Technology</i>
<i>IDRC</i>	<i>International Development Research Centre</i>
<i>IRFA</i>	<i>Indian Research Fund Association</i>
<i>IKS</i>	<i>Indigenous Knowledge Systems</i>
<i>IPR</i>	<i>Intellectual Property Rights</i>
<i>IT</i>	<i>Information Technology</i>
<i>KPI</i>	<i>Key Performance Indicators</i>
<i>MRC</i>	<i>Medical Research Council</i>
<i>MTEF</i>	<i>Medium Term Expenditure Framework</i>
<i>nDOH</i>	<i>National Department of Health</i>
<i>NHLS</i>	<i>National Health Laboratory Services</i>
<i>NHRC</i>	<i>National Health Research Committee</i>
<i>NHREC</i>	<i>National Health Research Ethics Council</i>
<i>NIH</i>	<i>National Institutes of Health</i>
<i>NIMR</i>	<i>National Institute for Medical Research</i>
<i>NRF</i>	<i>National Research Foundation</i>
<i>NRIND</i>	<i>National Research Institute for Nutritional Diseases</i>
<i>NSI</i>	<i>National System of Innovation</i>
<i>OECD</i>	<i>Organisation for Economic Co-operation and Development</i>
<i>PFMA</i>	<i>Public Finance Management Act</i>
<i>PMC</i>	<i>Programme Management Committee</i>
<i>RDC</i>	<i>Research and Development Committee'</i>
<i>PROMECC</i>	<i>Programme on Mycotoxins and Experimental Carcinogenesis</i>
<i>SAAVI</i>	<i>South African AIDS Vaccine Initiative</i>
<i>SAB</i>	<i>Scientific Advisory Board</i>
<i>SAC</i>	<i>Scientific Advisory Committee</i>
<i>SAG</i>	<i>Scientific Advisory Group</i>
<i>SETI</i>	<i>Science, Engineering and Technology Institution</i>
<i>TB</i>	<i>Tuberculosis</i>
<i>UDF</i>	<i>Unit Directors Forum</i>
<i>VP</i>	<i>Vice President</i>
<i>WHO</i>	<i>World Health Organisation</i>
<i>WRC</i>	<i>Water Research Council</i>
<i>YSF</i>	<i>Young Scientists Forum</i>

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FOR THE 2010 SETI* REVIEW OF

The South African Medical Research Council (MRC)

(* SETI= Science, Engineering and Technology Institution)