

**A REVIEW OF THE DST/NRF CoE: CENTER FOR TREE HEALTH
BIOTECHNOLOGY (DIRECTOR: PROFESSOR MICHAEL WINGFIELD
UNIVERSITY OF PRETORIA)**

6-8 MAY 2009

Reviewers

Professor Chrissie Rey (Convenor) (School of Molecular and Cell Biology, University of the Witwatersrand, Johannesburg)

Professor Tom Gordon (Department of Plant Pathology, University of California, USA)

Dr. Andrew Liebhold (Northern Research Station, USDA Forest Service, Morgantown, WV, USA)

A. EXECUTIVE SUMMARY

The CTHB has excelled in development of new knowledge through their research on the etiology of problems affecting native trees, and the identification and characterization of the causal pests and pathogens. The greatest contribution of the Centre to date has been the discovery of a wide diversity of plant-associated insects and microbes that was not previously recognised. It is the uniqueness of the CTHB program, which focuses on native species within the broader context of forestry and natural woodlands that gives this CoE a competitive national and global edge. The CoE has achieved high standards of research excellence, outputs and student training and commands an international profile. The Centre's publication record reflects the success of their research endeavour, and well exceeds stated goals.

Despite funding at half, the CoE has managed to leverage other external funds to support its activities and has achieved their KPAs in student training in comparison to full-funded CoEs. We agree with the CoE Board that the Centre should be fully funded in order to address additional high-priority and synergistic research objectives such as climate change and conservation. Given the exceptional productivity of the Centre to date, there is little doubt that NRF funding of this important work would be well spent.

The CoE has achieved all of the objectives within the Gate Stages and it is recommended that the CoE move into Gate Stage 4 with 5 years of further funding from the DST.

B. KEY RECOMMENDATIONS

We commend the Centre for Tree Health Biotechnology for their innovation in conceiving and assembling a focus area in the field of indigenous forest health, and for their high standards of scholarship, outstanding publication output and excellent postgraduate student enrolment. The international profile of the CTHB was evident to the review panel through the Centre's extensive network of collaborations, visiting international scientists and the involvement of students from other countries. The review panel also acknowledges the high level of leadership and management of the CoE. In particular, we would like to applaud the mentorship program for undergraduate BSc students in the CTHB. The CoE has made every effort to attract students from previously disadvantaged backgrounds, and we are confident they will meet their targets (which they have thus far failed to achieve by a small margin). The review panel explored this issue extensively in the interviews and the general consensus was that this is a national problem.

Strategic planning in the next 5 years for a post DST funding scenario may need to include broadening their scope to encompass more interdisciplinary aspects such as interactions of forest health with climate change and human activities, which would enable beneficial interactions with other departments such as Water and Forestry and Environment and Tourism. The CoE, based on their outstanding performance in meeting all of the objectives and gate hurdles, should be awarded funding for a further five-year period. However, the panel recommends that the CTHB urge the NRF to reconsider funding in full to encompass these additional goals of broadening their research focus. Given the unlikelihood of obtaining full funding, we strongly suggest that the funds be extended for a longer period beyond the 10 years.

In order for CTHB to be an effective resource for all aspects of forest health, they need to increase their emphasis of forest entomology. This has been recognized by the Centre with the appointment of two new faculty staff with expertise in entomology and transmission of fungi by insects. Another opportunity to enhance and deepen our understanding of and capacity to manage pathogens and pests affecting native trees, would be to expand CTHB efforts to include epidemiology (e.g., ecological modelling). To this end, the review panel recommends that the Centre consider allocating a faculty or other staff position to support this activity.

The panel recognizes the value of interlinking the research activities of the two programs (CTHB and TPCP) and recommends that this continue. While the objectives of the two programs are quite different (CTHB focuses on native trees while TPCP focuses on exotic forest plantations), the two efforts build nicely off of each other and they appear to synergize nicely.

It is recommended that the CTHB continue the successful Mentorship Program and track the students after they graduate to determine how many go on to do postgraduate work in science. The Mentorship Program may wish to take cognisance of some of the suggestions by the mentees for improving the program.

Guide to abbreviations

CAMS	The Centre for applied Mycological Studies
CoE	Centre of Excellence
CSIR	Council for Scientific and Industrial Research
CTHB	Centre for Tree Health Biotechnology
FABI	Forestry and Agricultural Biotechnology Institute
DEAT	Department of the Environment and Tourism
DST	Department of Science and Technology
DWAF	Department of Water and Forestry
KPAs	Key Performance Areas
NRF	National Research Foundation
TPCP	Tree Protection Co-operative Program
UP	University of Pretoria

C. COMMENTS ON THE REVIEW PROCESS

The overall framework of the Review, as laid out by the NRF, is appropriate. The review process was efficiently organized, and the format of interviews, with a range of stakeholders, academics, students and administrative staff was invaluable. In particular, the panel found the interview with undergraduate students in the Mentorship Program to be useful and insightful. The staff of the CTHB, FABI and NRF/DST should be congratulated for their efforts.

One possible improvement in the review process would be the inclusion of written submissions from students/academics (survey), prior to interviews. This would have allowed some anonymity for a wider canvassing of opinion. Also, a copy of the revised CoE proposal to the NRF could have been provided to the review panel in order to facilitate an assessment of the extent to which the CTHB is meeting its objectives. Information on the breakdown of what the budget is spent on, additional funding and funds leveraged would also be useful.

D. EVALUATION/ASSESSMENT OF THE CoE (CTHB) BASED ON KEY PERFORMANCE AREAS

7.1.1. Research

The main activity of CoE is research. The work that is undertaken should be focused on the creation and development of new knowledge and/or technology. In meeting this responsibility, the gender relevance of all research undertakings should be made explicit.

The CTHB has excelled in development of new knowledge through their research on the identification of pathogens and pests on native trees as well as the etiology of problems that they cause. The greatest contribution of the Centre to date has been the discovery of a wide diversity of plant-associated insects and microbes that was not previously recognised. Fungal species, which are a particular focus of their research (and expertise), in many cases have a global distribution and so are of importance well beyond South Africa. Recognition for CTHB expertise in this area has attracted a large number of international scholars to the Centre. CTHB research on natural woodlands and commercial plantations is providing new knowledge on pathogens that are transmitted

between native and exotic tree species. It is the uniqueness of the CTHB program, which focuses on native species within the broader context of forestry and natural woodlands that gives this CoE a competitive national and global edge. In forestry operations throughout the world, it is commonly observed that when new diseases appear, the origin of the causal pathogen is unknown. The research focus of the CTHB helps to address this issue and consequently has international significance.

In SA, there has been virtually no previous work on fungal diversity, and therefore the contribution of CTHB in studying fungal species in native woodlands and associated forests addresses a key national focus of conservation biology and biodiversity. This type of work has also received little attention elsewhere in the world and thus elevates the importance and visibility of South African science.

The CTHB has also made good progress in characterization of pathogen population structure. The opportunity to expand into quantitative epidemiology would enrich or complement current program activities.

Biocontrol of insects, and insect vectors of fungal pathogens, is a new area of research at the Centre. This is an important aspect of the CTHB research endeavour and should be supported. The Centre is also engaged in the diagnosis and monitoring of forest pathogens, and the CTHB is commended on the excellent work of the diagnosis clinic.

Gene mining for potentially useful, value-added products from microorganisms such as fungi is a useful synergistic collaboration between CTHB and the Centre for Applied Mycology Studies (CAMS). The discovery of new natural flavours from indigenous fungi, one of the interesting discoveries through the CTHB research collaborative projects, offers huge economic potential in applied biotechnology.

The existing expertise in tree biology and research methodologies at FABI and within the TPCP enabled the CTHB to establish their research capability quickly and provided an opportunity to study the movement of pathogens between native and exotic trees and both the TPCP and CTHB programs are therefore enriched. Generally, the efforts of CTHB are complementary with research funded under TPCP and the accomplishments of the two programs in combination likely exceed what either program could produce alone.

7.1.2. Education and training

Human resource development is to be done through masters and doctoral programmes, post-doctoral support, internship programmes, support for students to study abroad, joint ventures in student training, etc. In creating, broadening and deepening research capacity, a CoE needs to pay particular attention to racial and gender disparities.

The postgraduate training program in the Centre is excellent and the PG students indicated that they benefited from their interactions with the collective scientific community in FABI. As part of their graduate training, students are exposed to a variety of experiences, including field trips, conference presentations and seminars, and this enriches their training.

Due to the partial funding of the Centre, and the nature of overlap of studies on the health of native and commercially-propagated trees, it is noted by the panel that the PG students are supported by other funds in addition to those allocated to the CTHB. The CoE supports post-doctorates, assistantships, Honours, Masters and PhD students and have more than met their KPA targets in terms of numbers, completion and gender. CTHB has made good progress in terms of equity targets but have problems in attracting and retaining Black PhD students. This problem appears to result in part from personal financial problems of students but also competition from government and industry for good graduates. This problem is not unique to the CTHB, but rather is a national issue. The CoE has addressed this problem, in part, by introducing the Mentorship program that attracts undergraduates who hopefully will be motivated to stay on for PG degrees.

The Mentorship program represents an effective and innovative approach to enhance the exposure of undergraduates to research in the CoE. This program has had direct benefits to the Centre and the broader benefit of potentially increasing the pool of applicants in all academic fields of science. Clear evidence of its success is adoption of a similar model by the Faculty of Science. In the interviews, the panel was impressed with the maturity and confidence of the mentees, and their ability to articulate the benefits of the program. The benefits perceived by the mentees were that the program gives them a personal sense of involvement and understanding of science that they would not achieve from the course curriculum. The students gain experience in the laboratory and learn to solve problems that typically confront researchers.

The mentees noted some inconsistency in the quality of experience across mentors and felt this might be minimized if each mentored student was assigned a mini project. Thus, rather than simply performing tasks in isolation, students would take ownership of a project and develop a better sense of the purpose of the research and the techniques being used.

The mentors had a positive view of the program and appreciated the opportunity to teach science and, in the process, gain for themselves a better understanding of what they do. Some mentors also felt that that the third year students benefitted more but that the program is most beneficial if the BSc. students are involved for 2 years (2nd and 3rd year). The panel would like to commend the Centre for developing this innovative approach to encourage students to engage in science in the CHTB.

The MYRE outreach program, funded in part by the CHTB, also addresses the systemic problem of the lack of rural populations going into science. Under this program, MYRE staff travel to rural high schools and make presentations that encourage students to study at universities. Given that this type of program would be of considerable value at a National level, the review panel suggests that funding for the program should originate from appropriate government agencies. Given that this support is currently not in place, the panel commends the Centre for its conception and implementation of a creative outreach effort.

7.1.3. Information brokerage

CoE are to provide access to a highly developed pool of knowledge, maintaining data bases, promoting knowledge sharing and knowledge transfer, etc.

The Centre's publication record reflects the success of their research endeavour, and well exceeds any reasonable expectations. The greatest numbers of publications pertain to the identification and molecular characterization of new pests and pathogens. The journals in which these publications appear are appropriate and of high international quality. In context of the field of research, most of the journals the CTHB have published in have a high impact factor. In addition, there is good evidence that the papers are being cited by scientists around the world.

The number of international and national conference presentations by PG students and research members of CTHB is noteworthy. The synergies between the TPCP and CHTB have contributed to the magnitude and quality of their research output.

The CTHB engages in several outreach and information sharing activities as outlined in the CoE self-evaluation report, and these are fulfilling the mandate as outlined in the NRF terms of reference for CoEs. Several innovative conferences have been organized through the Centre and have attracted scientists from around the world. The efficient organization of the conferences and engagement of global scientists demonstrates the excellent management of the CoE, and also serves to enhance the international reputation of the Centre.

The group of stakeholders interviewed provided positive feedback on the CTHB activities. A representative of SANPARKS was highly complementary of the Centre's work and mentioned that their new information about pathogens of native trees had been very useful in their conservation efforts. Stakeholders representing the forest industry also strongly endorsed the focus on native tree species and saw considerable benefits from synergistic interactions with TPCP.

7.1.4. Networking

A CoE is expected to actively collaborate with reputable individuals, groups and institutions. Equally it must negotiate and help realise national, regional, continental and international partnerships, etc.

Collaborations by Centre staff with scientists at other institutions in South Africa, as well as with international contacts, have been impressive. During the review, it became clear that the Centre had developed effective partnerships with scientists at other South African research institutes and universities, while they had also built strong working relationships with land management agencies (e.g., SANPARKS). These collaborations have been very effective and allowed the Centre to take on research in areas where scientific expertise at the Centre would otherwise be lacking. Perhaps the most impressive aspect of networking however is the steady stream of foreign scientists that make their way to the Centre. The list of international scientists that have come to the Centre to work along with the staff there is impressive and speaks to the magnitude of the Centre's international reputation. Broadening of some of the projects to insect pests, such as the gall forming wasp on eucalyptus and

biocontrol, has led to further international collaborations for e.g. with Israeli scientists. Contacts through the African Mycological Society have led to a large outreach program (run by Yolanda Roux) in sub-Saharan African countries.

7.1.5. Service rendering

A CoE is to provide information, analysis, policy, and other services, including informed and reliable advice to government, business and civil society.

Over the last 5 years, Centre staff has taken part in a variety of outreach efforts, served on government advisory boards, and worked with the media to promote the communication of science. Their work in this area has definitively exceeded expectations.

7.1.6. Management of CoE

- **Leadership**

Mike Wingfield provides energetic scientific leadership and promotes an infectious team spirit. The efficient running of the CTHB also demonstrates his outstanding management style and skills. This was apparent from positive feedback from the staff and students through out the interviews. Professor Wingfield clearly has a unique ability to motivate and inspire members of the CTHB. Essential contributions to management of Centre activities are also provided by Brenda Wingfield, whose deep understanding of science and relevant technologies allows her to achieve effective allocation of resources and contribute to the scientific content of research activities. Together, the Wingfields identify relevant projects for the Centre to pursue and develop appropriate strategies to achieve their objectives.

- **Staffing**

The Centre has highly rated senior scientists and well-recognized, younger scientists (core members) that undertake high quality research and maintain a consistent level of productivity, as evidenced by publications in high impact journals. Research staff has shown themselves to be capable of meeting the objectives of the Centre. The administrative staff does a superb job in supporting the CoE research activities.

- **Commitment of institution hosting the CoE**

The university has made a sizable contribution to the Centre in terms of contributions to faculty positions and new equipment. Since the implementation of the Centre, the

University of Pretoria has created both a new forest pathology faculty position (Roux) and a new entomology position (Dr. Slippers). An additional forest entomology position has also been approved and is in the final stages of the recruitment process.

In addition to faculty positions, the University has provided impressive facilities and equipment. The two buildings occupied by FABI are state-of-the-art facilities and the University has also made a sizable contribution toward purchasing new equipment being used by the Centre.

- **Location of the CoE**

The CoE is strategically positioned within the structure of FABI at the University of Pretoria. The Centre is housed in excellent and modern facilities, and also has affiliated facilities such as the Bioinformatics Node and the quarantine facility at the farm that supports research activities. This is perceived as strength of the CTHB. Through out the review, staff members commented on the effectiveness of sharing resources between scientists working on projects supported either by the Centre or other (e.g. TPCP) sources.

- **Funding**

The CTHB manages its funds very well in that it is able to allocate appropriate resources to projects, leverage other external funds, capitalize on synergistic activities with the TPCP, allocate bursaries to students to meet targets and also top up inadequate student stipends to attract and retain good postgraduates.

Co-locating the CoE at FABI has provided considerable intellectual benefits but does not result in a significantly lower cost of doing research and consequently does not justify the 50% level of funding from the NRF. The success of the CTHB is partly a result of large amounts of additional funding that have been secured by scientists to support their research activities.

- **Strategic positioning of the CoE and future plans.**

The advisory board to the CTHB brings a broad range of skills together, and fulfils its role of providing general oversight and direction to the CoE's activities. The Board also ensures that the CoE meets the targets that have been specified in the Service Level Agreement. The members on the Board have adequate representation of

stakeholders and play an important role in developing strategic directions for the CoE. These have been discussed extensively in other sections.

(For further details please refer to Item 5 of the NRF framework for CoE in the South African System of Research and Innovation dated May 2003.)

[Extracted from the NRF framework:

5.6 Strategic positioning

Centres need to take active measures to position themselves strategically, by inter alia:

5.6.1 Ensuring staff serve on industrial and governmental bodies, management boards, etc.

5.6.2 Providing services to a wide range of users in public and private sectors

5.6.3 Maintaining links with ex-students and staff

5.6.4 Developing novel approaches to engage with users e.g. industry clusters, benchmarking groups, etc.

5.6.5 Outlining a clear dissemination strategy]

The CTHB has fulfilled its position in relation to the public and private sectors and government (as outlined in 5.6 above) as evident from the information presented in the previous sections 7.1.3, 4 and 5 (Information brokerage; networking and service rendering).

In terms of future plans, the results emanating from the CTHB will be of considerable importance in addressing conservation issues in SA and therefore the CoE could in the future position itself to play an important role in fostering national conservation and biodiversity efforts. There are some logical extensions of the work that has been started by the Centre but funds are not available to address these before the end of this funding period. The Board identified several interdisciplinary research efforts, such as studies of effects of climate change and human activities on etiology of problems affecting native woodlands, as integral to a strategic plan for the future. Multiple land use in the provinces, mandated by government, is important both in terms of human livelihoods but also with respect to ecosystem health. The role of DWAF and DEAT in protecting all forests will allow for funds from industry and government to co-fund an interdisciplinary, holistic forest protection plan, and the rigorous knowledge base on pests and diseases is critically important. Trees, such as the baobab, are important to rural communities as part of their cultural history, and the social perspective cannot be ignored. Industry and external stakeholders support this view. The review panel agrees with the board that this broader focus of research should be given consideration. Given the lack of adequate

resources at present, we recommend that funding for the centre be extended beyond 10 years to address these other problems.

7.1.7 Conception, implementation and management of the DST/NRF CoE Programme

With regard to the specific CTHB Program, the panel noted that the original submission for the CTHB was a focus on commercial plantations. The change of focus from commercial to native species was well-visualized and conceived. The importance of natural tree species and woodlands has emerged from the findings of the Centre. The CoE has implemented the objectives expeditiously and efficiently in identifying appropriate projects which will fulfil the goals of the CoE, allocating funds and distributing resources to support the stated objectives. The management of the CoE is outstanding and the obligations e.g. nuggets for the web and other deadlines are met on time. Scheduled progress and management meetings are regularly organized and reporting structures work efficiently. The technical and support staff are of high calibre and should be recognized for a job well done.

E. ASSESSMENT OF PERFORMANCE OF NRF

7.2.1 Conceiving, implementing and managing the DST/NRF CoE Programme to date in accordance with the objectives as specified in the CoE Strategic Plan, CoE Programme Business Plan and the Guide)

The concept of the CoE is sound for many reasons. For example, SA has limited financial resources so there are obvious benefits in prioritizing research based on unique areas that are most likely to achieve high levels of excellence and have a national and international distinction. However, the panel expresses concern that the reduced funding fails to exploit the full potential of the CTHB and puts pressure on the Centre to meet their objectives. It is perhaps inappropriate for them to produce the same level of outputs in comparison to fully-funded Centres.

7.2.2. Addressing the aims of the DST/NRF CoE Programme

- **exploit the competitive advantage vested in outstanding researchers;**
- **reward, retain, sustain and improve scientific excellence;**

- **integrate smaller and related research initiatives into one programme;**
- **achieve economies of scale through the optimization of resources and effort by sharing personnel, equipment, data and ideas;**
- **provide secure and stable funds for research and knowledge dissemination;**
- **support planned, strategic, long-term research;**
- **reduce micro-management of academics and their resources by the funding agency;**

The Programme has achieved these aims.

7.2.3. Future plans of the CoE Programme

We have already commented on the opportunities and long-term synergies with other national programs in biodiversity and conservation. Expanding the scope of their research activities to include tree-associated insects has already started and there are plans to broaden other projects. The value of quantitative epidemiological studies in the program has been pointed out. The importance of culture collection preservation as a source of genetic biodiversity at CTHB is vital. The collection of fungal and bacterial species from exotic and natural tree species is significant in context of the SA Biodiversity landscape.

7.2.4. Administrative and other logistical support for CoE Programme operations

The CTHB within the FABI infrastructure has efficient administrative and technical support. The University of Pretoria has provided considerable funds to the Centre and has recently supported two faculty positions in recognition of the importance of the research contribution that the CTHB makes.

E. KEY FINDINGS

The strategic innovation of the CoE and the close alignment with the TPCP has created research synergies between forestry and indigenous trees to the advantage of both groups. The strength of the CTHB is that it is a distinct Centre within the overall FABI structure but collaborates with the TPCP and CAMS and other university faculty members. It draws on the structure, expertise, equipment and management expertise of FABI and capitalizes on the synergies between existing FABI activities and CTHB-specific goals and objectives and has full support from the university.

A major finding was that exotic trees can be conduits for native tree pathogens and this has potential consequences for the overall protection of commercial plantations and natural woodlands, as well as economic implications. The exciting discovery of new species of fungi has augmented the biodiversity base, and has contributed to the national indigenous knowledge base. Additionally, the creation of the CTHB has offered the research team the opportunity to work beyond the overlap between exotic and native species - e.g. protea and baobab. Another major achievement is the sequencing of the genome of the bacterial pathogen *Pantoea*. This is the first phyto-bacterium and second bacterial genome to be sequenced in Africa. The creation of the CTHB also allowed extension of national collaborations, with for example the ARC, Conservation and University of Stellenbosch, on fynbos legumes and waterberry (a protected species), resulting in new opportunities. The existing global collaborations that FABI already enjoys have been extended through the CTHB.

Funding of the CTHB by DST and additional funds from FABI to CTHB has allowed the Centre to expand its other activities to include, for example, valuable interactions with public and government stakeholders.

The highly successful Mentoring Program for undergraduate students would not have happened without funding of the CoE, and the Faculty of Science have mirrored this mentorship program in the faculty as a whole. The students interviewed stated that the program has allowed them the opportunity to think, build knowledge, solve problems

and gain an advantage over their classmates. The CTHB has also attracted national and international scientists, and has registered a large number of postgraduate students for training. Funds from UP and other sources have allowed the CoE to top up student bursaries in order to attract high calibre students. Good team work and spirit is evident in the Centre.

The impact that the CTHB has had through its research on native species would not have taken place without the creation of the Centre. Movement of pathogens and pests between native and exotic species has far reaching implications for commercial forestry and in the broader areas of biodiversity and conservation.

Recognition that a potential threat to the CTHB in the future could be that there would be reduced or no funds from other sources to finish existing projects, should government funding not continue in any form. Long-term sustainability would require that the value of indigenous trees be viewed in the broader landscape of commercial forestry and conservation, such that it attracted support. Without some funding from government it is unlikely that commercial forestry would support all the activities of the CoE. Most current projects in the CTHB have to have 50% funding from other commercially based funding so both needs have to be met. Consequently, often a project cannot focus on a particular desired aspect, which dilutes the focus of the project.

F. PROGRAM AND INTERVIEWS

Review Panel Site Visit Programme
6-8 May 2009

Venue: FABI Board Room, Main Campus, Lunnon Road Entrance,
University of Pretoria (UP)

Wednesday 6 May 2009

09h00-10h00: **Briefing by representatives from National Research Foundation (NRF)**
Dr Andrew Kaniki, Executive Director: Knowledge Fields Development, NRF
Ms Joyce Olivier, Manager: Monitoring and Evaluation (M&E), NRF
Ms Makhupu Selepe, Professional Officer: M &E, NRF

Prof Mike Wingfield, Director: CTHB; Director: FABI; Mondli
Professor in Forest Pathology, University of Pretoria

10h00-11h00: **Review panel closed discussion**

11h00-13h00: **Interview with Director of CTHB**

Prof Mike Wingfield

13h00-14h00: **Lunch (in FABI courtyard)**

Prof Mike Wingfield

Prof Brenda Wingfield (*Research Leader*) CTHB, Department
of Genetics, UP)

Dr Leanne Dreyer (*research collaborator, Stellenbosch
University (SU)*)

Dr Marieka Gryzenhout (*Post-doc, UP and NRF grant-holder
Thuthuka programme*)

Mr Pieter de Maayer (*PhD student*)

Mrs Gerda Fourie, (*PhD student*)

Ms Olga Makhari (*MSc student, UP*)

Ms Natalie Theron, (*MSc student, SU*)

14h00-15h00: **Interview with CTHB Core Team Members (1st group)**

Prof Brenda Wingfield

Dr Leanne Dreyer (*research collaborator, SU*)

Prof Teresa Coutinho (*Department of Microbiology and Plant
Pathology, UP*)

Dr Bernard Slippers (*Department of Genetics, UP*)

15h00-16h00: Tea and **Interview CTHB Core Team Members (2nd group)**

Dr Gert Marais (*FABI and CSIR*)

Dr Emma Steenkamp (*Department of Microbiology and Plant
Pathology, UP*)

Dr Martin Coetzee, (*UP research fellow*)

Mr Brett Hurley (*Researcher, FABI*)

16h00-17h00: **Tour of facilities** (*with Prof Brenda Wingfield*)

17h00-18h00: **Review panel closed discussion**

Thursday 7 May 2009

08h30-09h00: **Review panel closed discussion**

09h00-10h00: **Interview with CTHB Support Staff**

Mrs Vivienne Clarence (*Administrative Officer, FABI*)

Mrs Jenny Hale (*Administrative Officer, FABI*)

Ms Heidi Roos (*Database Administrator, FABI*)

Ms Izette Greyling (*TPCP/CTHB Diagnostic Clinic Manager and Forest Entomology Extension Office serving TPCP (Tree Protection Co-operative Programme) and CTHB stakeholders*)

10h00-10h30:

Tea and Interview with leaders of mentorship programme and mentors

Ms Kershney Naidoo (*PhD student & has assisted Irene Barnes to run mentorship programme for last few years & has mentored many students*)

Mr Simon Martin (*MSc student mentor to Jake van der Merwe and has come through mentorship programme from his 2nd year BSc*)

Mr Alvaro Duran (*PhD mentor from Chile of Nadja Roelofse*)

Mr Wubetu Bihon (*PhD mentor from Ethiopia of 2nd yr student, Musa Kunene, who could not attend today*)

Mr Markus Wilken (*MSc mentor of Vusi Letsoalo*)

10h30-11h00:

Interview with mentorship students

Ms Thembi Moloantoa (*3rd year BSc student – her PhD mentor, Mrs Elsie Cruywagen is on leave*)

Ms Nadja Roelofse (*3rd yr BSc student*)

Mr Baks Aobakwe (*3rd yr BSc student*)

Mr Vusi Letsoalo (*3rd yr BSc student*)

11h00-12h00:

Interview with CTHB Masters students and Mpepu Rural Youth Encouragement (MRYE) outreach group supported through CTHB.

Mr Samukelo Vilakazi, Leader of MRYE (*engineering student, UP*)

Ms Chrizelle Beukes (*MSc student, UP*)

Ms Marija Kvas (*MSc student, UP*)

Mr James Mehl (*MSc student, UP*)

Ms Vuledzani Muthelo (*UP MSc student graduating in 2009 and working at DWAF*)

Ms Linda Ndove (*MSc student, UP*)

Ms Natalie Theron (*MSc student, Stellenbosch University (SU)*)

Mr Markus Wilken (*MSc student, UP*)

12h00-13h00:

Interview with CTHB post-docs and PhD students

Dr Marieka Gryzenhout (*Post-doc, UP and NRF grant-holder Thuthuka programme*)

Dr Seonju Marincowitz, (*CTHB Post-doc for 3 years– Korean*)

Mr Didier Begoude (*PhD, student, UP - Cameroon*);

Ms Gudrun Dittrich Schröder (*PhD student, UP, completed MSc at University of Kwazulu-Natal (UKZN)*)

Mr Pieter de Maayer (*PhD student, UP*)

Ms Matsepo Taole (*PhD student, UP – Lesotho*)

13h00-14h00:

Lunch (in FABI courtyard) with stakeholders and CTHB Board members

Mr Michael Peter (*CEO, Forestry South Africa (FSA)*)
Prof Colin Dyer (*ICFR (Institute for Commercial Forestry Research) UKZN*)
Ms Thembi Khoza (*Science Liaison Officer, Sanparks (South African National Parks)*)
Prof Anton Ströh (*CTHB Board member and Dean of Faculty of Natural and Agricultural Sciences, UP*)
Dr Diana Six (*CTHB Board member (research area expertise), University of Montana, Missoula, USA*)
Prof Eddie Mwenje (*CTHB Board member (research area expertise), Executive Dean of Applied Sciences, National University of Science & Technology, University of Bulawayo, Zimbabwe*)
Prof Coert Geldenhuys (*CTHB Board member (research area expertise), Honorary Professor, SU and Forestwood CC*)

14h00-15h00: Interview with external stakeholders

Mr Michael Peter (*CEO, Forestry South Africa (FSA)*)
Prof Colin Dyer (*ICFR (Institute for Commercial Forestry Research, UKZN)*)
Ms Thembi Khoza (*Science Liaison Officer, Sanparks*)
Prof Paulette Bloomer (*Department of Genetics, UP*)

15h00-16h00: Interview with UP Management

Prof Anton Ströh (*CTHB Board member and Dean of Faculty of Natural and Agricultural Sciences, UP*)
Prof Robin Crewe (*CTHB Board Chairperson and Vice-Rector, UP*)

16h00-17h00: Interview with CTHB Board members

Mr Mike Edwards (*CTHB Board member (finance, management and knowledge of forestry companies and needs) & ex CEO of FSA (Forestry South Africa)*)
Dr Diana Six (*CTHB Board member (research area expertise), University of Montana, Missoula, USA*)
Prof Eddie Mwenje (*CTHB Board member (research area expertise), Executive Dean of Applied Sciences, National University of Science & Technology, University of Bulawayo, Zimbabwe*)
Prof Coert Geldenhuys (*CTHB Board member (research area expertise), Honorary Professor, SU, and Forestwood CC*)

17h00-18h00: Review panel closed discussion

18h00-21h00: Dinner with members of CTHB Board, external stakeholders and CTHB core team members in FABI Square

Prof Chrissie Rey, Prof Tom Gordon, Dr Andrew Liebold, Prof Colin Dyer; Ms Thembi Khoza; Mr Mike Edwards; Dr Diana

Six; Prof Eddie Mwenje; Prof Coert Geldenhuys; Prof Mike Wingfield; Prof Brenda Wingfield; Dr Leanne Dreyer; Prof Teresa Coutinho; Dr Bernard Slippers; Dr Gert Marais; Dr Emma Steenkamp; Dr Martin Coetzee; Mr Brett Hurley; Mr Carlos Rodas, Colombia, Dr Lori Eckhardt Auburn University, USA , Mr Wilhelm de Beer, (PhD student at FABI).

Friday 8 May 2009

- 09h00-10h00: **Review panel closed discussion and report writing**
- 10h00-10h30: **Follow up of remaining questions with CTHB management group (if required)**
Prof Mike Wingfield
Prof Brenda Wingfield
Mrs Jenny Hale
- 10h30-11h00: **Tea**
- 11h00-13h00: **Report writing continues**
- 13h00-14h00: **Lunch (in FABI courtyard)**
Prof Mike Wingfield and Prof Brenda Wingfield
- 14h00-17h00: **Finalisation of review report**