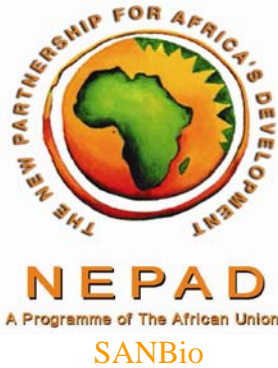


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REPORT ON SANBio NETWORK DIRECTOR'S VISIT MAURITIUS, 19-21 May 2008



Background

The SANBio Network Director visited stakeholders in Mauritius from 19-21 May 2008 to discuss with them areas for collaboration on SANBio initiatives that have commenced and those that are in the pipe line. This was also an opportunity for both parties to identify areas where NEPAD and its international partners can add value to the ongoing biosciences initiatives within Mauritius. The Network Director was accompanied by Dr. Vinesh

Maharaj, Senior Researcher at the CSIR-Biosciences which hosts the SANBio Hub.

During this visit the Network Director was hosted by Dr Arjoon Suddhoo, Executive Director, MRC who is also the SANBio Steering Committee member for Mauritius. A series of meetings with stakeholders were held at the Mauritius Research Council (MRC), University of Mauritius (UoM), Enterprise Mauritius (EM), Mauritius Oceanography Institute (MOI), Mauritius Sugar Research Institute (MSRI), Food and Agriculture Research Council (FARC) and at the Agriculture Research and Extension Unit (AREU). A list of stakeholders met is attached in Appendix 1.

Programme of Visit

Monday 19 May 2008	
09:00-12:30	Seminar at Mauritius Research Council (MRC)
Working Lunch	National Biosafety Committee
14:00 – 14:15	Visited the University Farm
14:20 – 15:00	Meeting with Vice Chancellor, University of Mauritius
15:30 – 17:00	Meeting with Faculty of Agriculture, University of Mauritius
Dinner	
Tuesday 20 May 2008	
09:30 -10:30	Meeting at Enterprise Mauritius (EM)
11:00 – 12:30	Meeting at Mauritius Oceanography Institute (MOI)
Lunch	Mauritius Oceanography Institute (MOI)
13:30 – 14:30	Visited the Agriculture Research and Extension Unit (AREU)
14:45 – 15:45	Meeting with faculty of Biosciences, University of Mauritius
16:00 – 16:30	Visited Mauritius Sugar Industry Research Institute (MSRI)
16:45 – 17:30	De-briefing at MRC
END OF DAY TWO	

DAY ONE: 19 May 2008



Meeting held at Mauritius Research Council (MRC)

Attendance:

Several guests from MRC, UoM, MSRI, and MOI attended the meeting. (Attendance list attached, Appendix 2).

Welcome Address

Professor Soodursun Jugessur welcomed all the participants to the meeting. He observed that a lot needed to be done in STI in Africa. The continent is rich in precious natural resources but we are not doing much to exploit these resources. He stressed the need to implement R & D which will add value to our natural resources and add value to our region. . He also emphasised the need to commercialise research findings and to develop our own SME which can reduce the cost of products such as pharmaceuticals. He challenged the Network to come up with collaborative projects that will lead to products and services for the people.

Presentations

Dr Arjoon Suddhoo, Executive Director, MRC, gave an overview of the vision and mission of the MRC. The institution has over 350 ongoing research projects and the institution has experienced an upward trend in public funding for research. He then focussed on the Emerging Economic Sectors for Mauritius. He highlighted the huge ocean resource to Mauritius and current activities and efforts being done to add value to this resource e.g. deep sea water use as a new source of highly pure water and the seaweed industry. They have also completed a feasibility study whereby a 4 x 4 motor vehicle has been modified to run on vegetable oil. Similar studies are ongoing on the use of coconut oil as a source of energy (fuel).

In his first presentation Prof Mumba gave a summary on the implementation of Africa's Science and Technology Consolidated Plan of Action (CPA) highlighting the following issues:

- Background
 - Role of STI in Africa
 - Africa's agenda for STI
- AU/NEPAD Consolidated Plan of Action
- Programmes of the CPA
- African Biosciences Initiative
- Progress on implementation of the CPA
- Funding mechanisms
- Challenges
- Conclusions

In his second presentation, Prof. Mumba introduced the SANBio Network and the Business Plan highlighting the following issues:

- Genesis of SANBio
- Mission and vision of the SANBio
- Governance and Management structure
- Priority R & D Projects
- Implementation status of 5 R & D Projects
- Mode for regional collaboration
- Funding mechanisms
- Challenges
- Conclusions

In his presentation he mentioned one of the ongoing priority projects, on Validation of Traditional Medicine on HIV and AIDS. The two main questions that were raised were:

- Why only HIV and AIDS?
- It does not appear Food Security is important to SANBio and yet there is a food crisis in the world

Prof Luke Mumba responded that the decision on HIV/AIDS was a strategic one made by the SANBio Steering Committee but this does not preclude bringing on the SANBio platform other diseases. He further explained that food security is also covered under some projects within SANBio such a mushroom technology, enhancement of nutritional quality in sorghum and millet, etc. Food security is also considered in more detail under the NEPAD Agriculture Sector in the Comprehensive Africa Agriculture Development Plan (CAADP).

Dr. Vinesh Maharaj, made a presentation on CSIR –Biosciences and provided background and current status of research on the SANBio Flagship Project on HIV/AIDS. Main discussions were on the following:

- Regulations
- Screening and pharmacology
- A request to assist Mauritius researchers in the future development of their medical plant products

Meeting held at Vice Chancellor's office at University Of Mauritius.



Attendance:

Professor Dr. Indur Fagoonee	(Vice Chancellor)
Professor Ameenah Gurib-Fakim	(Pro Vice Chancellor)
Professor D. Puchooa	(Dean of Faculty –Agriculture)
Dr. Vinesh maharaj	(Research Group Leader, CSIR)
Professor Luke Mumba	(Director, NEPAD/SANBio)

Ms Abongile Dalasile

(Assistant to the SANBio Director)

Welcome Remarks

Prof Fagoonee welcomed all the participants to the meeting. Prof Mumba provided a background of NEPAD and SANBio. Dr. Maharaj provided a background on of CSIR, Biosciences and the HIV flagship project on medicinal plants.

The University offered to be a lead for the Bioinformatics Project in the region since no progress has been made to date in this area. The University to come up with concept note on what they thought needed to be done in bioinformatics in the region. The Vice-Chancellor observed that, it appeared that food security was not a priority to SANBio. Prof Mumba emphasised that it was one of the priority areas in NEPAD and invited the University to come up with specific project proposals on food security which could be considered by SANBio.

Prof Luke Mumba thanked the Vice Chancellor for inviting us to his office.

Meeting held at University Of Mauritius Faculty of Agriculture

Attendance:

Several participants from the University, attended the meeting.

Prof Mumba, provided background of SANBio and the various ongoing projects. Further discussions were on the following:

- Phytochemistry of medical plants
- University of Mauritius to be the node for Bioinformatics
- Mushroom farming activities in Mauritius to be linked with Namibia Mushroom Node

Prof. Mumba agreed that modest funds are available to develop a Bioinformatics business plan and that the University needs to send a concept note including the budget for bioinformatics. An MoU with SANBio/CSIR would have to be put in place before the start of the work.

University Of Mauritius has already made contacts with several institutes in South Africa. They collaborate with Prof Eloff at Onderstepoort (OVI) on veterinary medicines. They would like to send students for training in various aspects or get samples analysed on a cost basis. B Esha Aumjaud (Food Chemistry, Food Quality and Safety) expressed an interest in food science

DAY TWO: 20 May 2008

Meeting held at Enterprise Mauritius (EM)

Attendance:

Dr. Krishna Heeramun
Vivekanand Lochun
Prakash Beeharry
Prof. Luke Mumba
Dr. Vinesh Maharaji
Ms. Abongile Dalasile

Enterprise Mauritius is a fusion of Stakeholder institutions, EPDZA and MIDA
EPDZA- Represents Human capital development
MIDA- Exporting
SIDA- small enterprise start-up

EM receives funding from the ministry of industry Cooperatives and SME's. The funding can be used for consultancy and product development and to set up new enterprises. They assist Small enterprises in marketing products that they produce, for example:

- Textile
- Jewellery
- Furniture
- Sea food
- Tourism services
- Electronics

EM is currently trying to identify product lines of importance to Mauritius They currently have ICT companies that are selling to African countries mainly ICT services.

CSIR helped in the establishment of internet services to Mauritius through EPDZA. Enterprise Mauritius identified certain products in indigenous plants, and trying to develop these. During discussions it was realised that Mauritius is not part of IPR Helsinki agreement.

Areas for which they are looking for assistance in product development are:

- Black tea – richer in antioxidant activity than green tea.
- Chinese Guava – treat Alzheimer's disease
- Medicinal Plants for treating diabetes

These project have been approved by their Board, and would like CSIR to assist in their further development and commercialization.

An MOU was signed between the CSIR and MRC in 1998 and is still valid and could cover collaboration initiatives to be entered into. Funding has been discussed in detail internally within EM and they will have to motivate to their Board to approve funding and why they wish to collaborate with the CSIR. EM indicated that they would prefer a collaborative agreement with CSIR but will also work directly with the University Of Mauritius and other institutes.

Meeting held at Mauritius Oceanography Institute (MOI)

Attendance:

Several guests from Mauritius Oceanography Institute attended the meeting. (Attendance list attached, Appendix 3)

MOI diversified their research for alternative income sources. Each of the leaders described their activities in the following:

- Choral regeneration for aquariums which is funded by SIDA
- All their marine organisms have been put into one database
- Pearl oyster culture programme has been initiated
- Currently investing micro-algae as a source for bio-fuels and spirulina

Background on SANBio was proved by Prof Luke Mumba

MOI expressed interests in training students in sequencing (molecular genetics)

We should link Raj/Rachel with MOI on the micro-algae biofuels project. They also have a possibility of obtaining funding from an industrial company in Mauritius for the bio-fuels project.

Mauritius Oceanography Institute has a collection of ± 100 sponges and has prepared extracts of some of these. Approximately 8-10 have been committed to the CNRS, France, and were screened for their anti-cancer activity. An agreement is in place with CNRS for these extracts. They would like the following with CSIR:

- collaboration in screening the extracts of the sponges for anti-cancer, TB, HIV, Malaria and joint future R and D project on the hits.
- Training of a maritime students in our anti-cancer screening lab.

MOI also described their research on a mangrove which they have validated for use in treating diabetes and would like CSIR to assist them in its further development and commercialization. It was then realised that this is the same product that was described by Enterprise Mauritius.

Meeting held at Food and Agriculture Research Council

Attendance:

Shamduth Beni Madhu (Principal Research Scientist)
Dr. Vinesh Maharaji

Mr Madhu explained their activities which include:

- Service to farmers in agriculture
- They have monitoring and recommendation sheets for the farmers including treatments
- They integrate management systems ensure crop rotation and reduce pathogens,
- Identified pathogenic antagonists against viruses, bacteria
- FARC is fully government funded

Meeting at AREU



Prof Luke Mumba visited the Mushroom producing facility at the Agriculture Research and Extension Unit (AREU) some 10 KM outside the UoM. The unit is engaged in offering short courses to communities on mushroom farming and conducts research on both exotic and indigenous mushrooms. The unit has a reasonably big facility for mushroom propagation. The Head of the Unit Ms. Priya Huzar Futy Beejan was keen to be connected to other mushroom initiatives in the region such as the Mushroom Consortium in the region which is coordinated by the SANBio Mushroom Node in Namibia.

Meeting held at the University Of Mauritius Bioscience Department.

Attendance:

Several guests from University Of Mauritius attended the meeting (Attendance list attached, Appendix 4)

The group described various biological assays for prophylactic effect. They have an anti-oxidant from a plant extract which has been thoroughly tested in several anti oxidant systems and need to identify the mechanism and action. The active ingredients have not yet been identified. The Head of the Department said they need to build a network which encompasses all stakeholders in Biosciences in which should be Coordinated by the MRC. The role of MRC involvement in SANBio also needed to be clarified as not all information was filtering down to the scientists.

It was realised that the anti oxidant lead described by Enterprise Mauritius is the same one that is being researched by the University.

Meeting held at the Mauritius Sugar Industry Research Institute.

Attendance:

K. F. Rene` Ng Kee Kwong
Luke Mumba
Vinesh Maharaji
Abongile Dalasile

Professor Kwong welcomed the guests to the meeting and gave a short background about the Sugar Industry in Mauritius.

This was followed by a video presentation on the Mauritius Sugar Industry Research Institute.

The institute has 22 Departments.

Their main goals are to produce:

- Pest free cane (more recently this could be done through genetic modification)
- Increase in biomass for energy

Their main research variety selection through plant breeding and have to date released 53 varieties. Their technologies include:

Biotechnology

- Tissue culture lab to increase plantlet supply of new varieties

- Diagnosis of diseases
- GMO modification for pest resistance, drought resistance

Physiology

- Improve crop improvement programme
- Sucrose production / accumulation
- Effect of climate on production

Research activities

- Diseases free planting material
- Screening of resistance clones for cloning/ variety selection
- Diseases free seed

Entomology

- Pest control by biological control methods for sugar cane and potatoes

Agronomy

- New herbicides, spray techniques

Chemistry

- Soil mapping for cultivation
- Land resource mapping
- GIS systems for map/ farm operations
- Fertilisers use and optimization
- Protection of environment and movement of chemicals in soils / marine and aquatic life monitoring.

Irrigation

- Use the big gun approach, drip irrigation also implemented
- Centre pivot widely used
- Factory waste water usage

Processing / Manufacture / Engineering

- Continually improve process, safety, and environment
- Researching biofuels from waste

Field trials

- Testing of new varieties in wide range of environmental conditions

Discussions

Have drought resistant, herb resistant modified strains, however, no further collaboration was envisaged between the SANBio and MSIRI at this stage.

Wrap-up Meeting held at the Mauritius Research Council

Attendance:

Vinesh Maharaj
 Luke Mumba
 Abongile Dalasile

Diwakar Gangapersad

The following was agreed to with their further actions:

Bioinformatics

- University of Mauritius has indicated interest to host the SANBio Project on Bioinformatics
- UoM Faculty of Agriculture and Department of Biosciences to submit a Concept note on Bioinformatics to SANBio Director
- MoA between SANBio/CSIR and University of Mauritius will need to be drawn up at a later stage to define the working relationship between the parties.

Mushrooms

- Luke to link the Agricultural Research and Extension unit in Mauritius with the mushroom Node in Namibia to explore areas for collaboration.

Anti-oxidants and diabetes

- Enterprise Mauritius to discuss with Mauritius Oceanography Institute and University of Mauritius to come to a consensus and agreement.
- CSIR to sign an agreement with one of these institutions for the further development of these leads.
- Enterprise Mauritius could fund the project on the further development of these leads.

Sponges

- MOI and CSIR to draw up a project concept and seek joint funding. Each party could carry their own costs for the initial screening of the extracts
- MRC to determine whether the concept can be drawn up under the current MOU between MRC and CSIR.
- MRC to discuss this issue with MOI
- MRC as a focal point has to disseminate information to all stakeholders in Mauritius.

An MOU was signed between the CSIR and MRC in 1998 and is still valid and could cover current collaboration.

CSIR to provide a quotation to MOI on the training of a student in the anti-cancer screening lab. Cost should include bench fees, CSIR to determine if a contract is still needed for this.

CSIR, Biosciences - Bio fuels initiative from micro algae to possibly link up with MOI, should the CSIR have an interest in this.

MAURITIUS RESEARCH COUNCIL (MRC)

DATE : 19 MAY 2008

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UNIVERSITY OF MAURITIUS (UOM)

DATE : 19 MAY 2008

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