

**ADDRESS BY HON. D.GOKHOOL,
MINISTER OF INDUSTRY, SCIENCE AND
RESEARCH**

BIOINFORMATICS WORKSHOP

**Mauritius Research Council in collaboration
with**

University of Mauritius

MONDAY 27 JULY 2009

AT 09.00 HRS

MRC – Rose Hill

- Prof Jugessur, Pro Chancellor and Chairman of Council, University of Mauritius, and Chairman of the Mauritius Research Council (MRC)
- Mr Ragen, Permanent Secretary of the Ministry of Industry, Science and Research
- Prof Mumba, Network Director, Southern African Network for Biosciences (SANBio)
- Mrs Chamdimba, NEPAD Office, Republic of South Africa
- Prof Rughooputh, Ag Vice Chancellor, University of Mauritius
- Dr Suddhoo, Executive Director of the MRC
- Dr Bongcam-Rudloff, Chairman of the European Molecular Biology Network, Sweden
- Dr Korpelainen, CSC – IT Center for Science, Finland
- Dr Etienne de Villiers, International Livestock Research Institute, Kenya
- Prof Joubert, University of Pretoria, Republic of South Africa
- Dr Reva, University of Pretoria, Republic of South Africa
- Heads of Institutions and Organisations

- Distinguished guests
- Ladies and Gentlemen

It gives me great pleasure to be associated with this workshop on bioinformatics and to welcome you all to this event. I firmly believe that any effort made towards enhancing our knowledge base and broadening our commercial opportunities is ultimately aimed at improving our development and the welfare of our society.

The use of bioinformatics spans across a wide range of potential applications, including those related to health, agriculture and biodiversity. For countries that have already embarked on major bioinformatics initiatives, the first stages of establishing research institutes and conducting specialised research are completed. These countries are now considering how they will move from their early-phase investment towards applications that can generate economic and social benefits. For other countries that are yet to make the initial significant investment, the questions are: what are the potential entry points, what are the challenges and opportunities, and importantly in the context of this workshop, what are the potential ramifications beyond the expected socio-economic benefits?

Scientists rely heavily on the use of datasets for research and development. Because the datasets available to scientists are constantly growing, the need for handling this data computationally has increased. The functions of processing and storing data, reconciling this data with other existing datasets, and building layers of datasets on top of earlier datasets are clearly best done by computers, and these functions are the basis for current bioinformatics.

Bioinformaticians are responsible for delivering these datasets to scientists in a way that removes some of the need for them to do their own experiments. Bioinformaticians are also helping to test hypotheses, so that results can now be achieved by using computers and bioinformatics programs with existing data, without the need for many of the traditional techniques. And this, ladies and gentlemen, presents us with a unique opportunity to capitalise on resources to be found in both our terrestrial and largely untapped marine environments.

As an example, I am given to understand that research carried out since 1972 on the Indian Ocean sea hare *Dolabella auricularia* has yielded extracts, some of which, following purification, have been used in pre-clinical trials and are currently the subject of clinical trials. Several patents have been issued over the period 1989 – 1998 to research groups based in the US or Europe, covering purified substances that were isolated from different plant or animal resources found in Mauritius and in the Mascarenes region. Potential applications range from use as anti-cancer agents to incorporation in pharmaceutical or cosmetic preparations.

Ladies and gentlemen, these illustrate the type of development that could be envisaged for other, as yet unexploited, sustainable natural resources that exist in Mauritius.

Various tools within bioinformatics could be applied at both the early and late stages of drug development. However, such applications depend on first having carried out detailed profiling of purified substances from a range of natural resources, including those that have been identified as forming part of our traditional usage.

My understanding is that such profiling has only been carried out to a limited extent in Mauritius, and therefore represents niche areas that could be explored and where bioinformatics will have a significant role to play.

We already have a few institutions with experience in the development of our resources. The Mauritius Oceanographic Institute, for instance, is working on sea sponges and mangroves to investigate potential pharmaceutical properties. The Mauritius Sugar Industry Research Institute has developed expertise in genetic screening of sugarcane varieties, including identification of disease markers. The Mauritius Research Council has undertaken detailed profiling of the deep seawater surrounding our island, with regard to the development of a Land Based Oceanic Industry. It is also conducting extensive analysis of the seaweeds that occur naturally in our lagoons, with a view to opening up a Seaweed Industry. I am also happy to know that the University of Mauritius has recently been designated as the Regional Bioinformatics Node by the Southern African Network for Biosciences (SANBio), to coordinate the development and implementation of a programme for training and capacity building in bioinformatics for the Southern African region.

As you may have noticed, bioinformatics draws people from a broad set of backgrounds, and the combination of molecular biologists, computer scientists, physicists, mathematicians, and specialists from other disciplines makes this field both exciting and challenging. The potential synergy of cross-linking disciplines opens many new exciting opportunities for Mauritius, facilitating access to the global scene.

Ladies and gentlemen, today's workshop is just the beginning of more upcoming collaborations while we explore the growing commercialisation area of bioinformatics. Getting some of the key experts and stakeholders together is vital for the intellectual exchange of the latest bioinformatics technology, as well as for establishing an understanding of the various research and development directions that can be exploited. I hope that the workshop will also lead to a networking platform for collaborations between research scientists, bioinformatics companies and commercialisation professionals.

Indeed, I am pleased to announce that my Ministry has requested the MRC to consider the setting up of a Bioinformatics Coordination Cell, whose main role will be to support such a networking platform. The combined access to innovative research, technology transfer expertise and a wide global network from this platform, can give us the competitive strength to exploit the fast-expanding bioinformatics market strategically.

I would wish to recall that during my time as Minister of Education and Human Resources, we strongly supported the issue of science education with emphasis on field work and hands-on experience. I'm glad to see that this workshop, although mainly aimed at understanding the technical aspects of bioinformatics, does include elements of pedagogical value.

Mauritius is undergoing a fundamental economic and social transition, which should shape the future and prepare the country to operate in a more and more globally competitive environment. This transition demands that traditional sectors be revisited and consolidated while new emerging sectors be explored in order to diversify the economic portfolio and increase our resilience to global shocks. Both the University of Mauritius and the Mauritius Research Council **and a number of other institutions** are playing

an important role in contributing to the transformation of our economic base. The new strategies aim to provide solutions to existing issues while setting the scene for new ways of wealth generation and job creation, through research, technology and innovation.

My Ministry has had the collaboration of the MRC, TEC and other institutions

to prepare the STIP report and in the coming weeks this report will be made public. This report has identified a number of research areas to be developed. Through extensive consultations with stakeholders and after taking into account their views, My ministry will come with an operational plan to fast track the different projects **Bioinformatics is one of our priority areas.**

In this context, a strong bioinformatics capability can accelerate the development of Mauritius by ensuring that both public and private enterprises have access to the know-how and technology to help them develop biotechnology-based products and services. In turn, a Mauritian-grown bioinformatics capability would improve the international perception of Mauritius as a regional bioindustry centre, and increase the country's credibility to attract research and commercially related foreign direct investment, whereby the strategic role of the Board of Investment in this new venture.

We **are aiming** at creating a strong, diversified, high value-added and competitive industrial sector, while encouraging development of new and high value-added industrial activities. This can be achieved by promoting investment in state-of-art production technologies, the development of emerging sub-sectors and fostering an enterprise culture through entrepreneurship development. Research and Development activities related to Science and Technology can only be beneficial to this objective.

(to be removed 0

The Council has adopted the following priority areas onto which resources will be focused:

- Development of ocean technology and marine resources
- Energy efficiency and renewable energy
- Waste management and waste recycling
- Biomedical and biopharmaceutical research based on indigenous resources
- Science and Technology (S&T) Education

My Ministry has as vision a globally competitive, environmentally sustainable and socially responsible industrial sector, propelled by Science, Technology and Innovation.

We have set the following objectives:

- To enhance the global competitiveness of the industrial sector
- To foster development of integrated, high-tech and innovative industries
- To sustain quality through recognized standards
- To promote science and research for wealth generation, job creation and sustainable development.

The Ministry of Industry, Science and Research has been established as a clear indication of the importance given to these issues of major importance to the advancement of the country and in its endeavour to meet the aspirations of the people of this great little island state. We need more confidence building in what we do everyday and more sharing for efficacy and effectiveness to ensure a better future.

(TO be removed)

With such ambitious objectives, it is only proper to have a Science, Technology and Innovation Policy (STIP) that should provide the guidelines for research-related activities aimed at consolidating and enhancing our economy and welfare. This should allow more

interaction among the research institutions and the industry sector. My Ministry has spearheaded this major initiative.

We need to ensure stakeholder involvement at all levels and right from the beginning of each process. This may require an initiation to a system of innovation based on an integrative approach where multidisciplinary teams work as teams for priority projects aimed at national benefits. Bioinformatics is, without any doubt, a highly successful example of a multidisciplinary field promoting effective networking.

Once again, I would wish to convey my appreciation to the University of Mauritius and the Mauritius Research Council for organising such a workshop, that will help us develop our policy and strategy in the bioinformatics sector. I also take this opportunity to thank Professor Mumba and our guests from overseas for having kindly accepted to contribute towards the bioinformatics sector of Mauritius.

With these few words, ladies and gentlemen, may I thank you for your attention and declare this workshop open.

