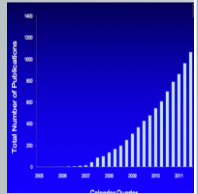
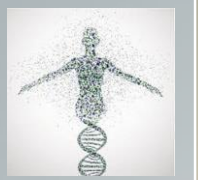


National Policy on Genome Centres and the National Genome Data Repository



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Content

1. Policy Name
 2. Effective Date
 3. Introduction
 - I. Background
 - II. Need
 - III. Purpose & Context
 - IV. Rationale
 4. Policy Principles
 5. Policy Statements
 6. Policy Goals
 7. Applicability & Scope
 8. Policy Implementation
 - I. Strategies
 - II. Responsibility & Authority
 - III. Monitoring & Evaluation
 9. Glossary
- Annexure: 01 Members of the Expert Committee
- Annexure: 02 List of Participants at stakeholders meeting
-

1. Policy Name

National Policy on Genome Centres and the National Genome Data Repository

2. Effective Date

3. Introduction

I. Background

The completion of the Human Genome Project in 2001 marked the beginning of the post-genomic era. Parallel to this, the genomes of microbes, animals, and plants were also sequenced. These initiatives led to increased activity in all spheres of the economy, including healthcare, agriculture, and other industries. Every dollar spent on the Human Genome Project is estimated to have resulted in over US \$ 175 in economic gains in the United States alone.

The genetic data of a country is a national resource and a valuable sovereign asset. The reason being that the genetic makeup of a country's population and its indigenous fauna and flora (within its biological diversity) are unique to each country.

In this post genomic era, it is incumbent upon every country to catalogue its own biological diversity at the genomic level and ensure that it is protected and at the same time used for the benefit of society.

II. Need, Purpose, Context & Rationale

Sri Lanka has been a minor player in the global genome sequencing movement. The country has not had its own national-level genome sequencing projects. However, individual centers have been conducting genomic research at the institutional level. Therefore, there is a need to coordinate and support the activities of these centres to ensure that they contribute to and enhance the envisaged outputs of the National Research and Development Framework (NRDF).

Strengthening the resources in such centres and enabling them to work as a coordinated network of collaborating centres would promote research leading to cataloguing and protecting the biological diversity of Sri Lanka, which would in turn result in increased activity in all spheres of the economy impacted by these discoveries.

In this context, it would be prudent for the subject Ministry of Science, Technology, and Research to support centres in universities and other research institutions that have a primary function of providing genome sequencing, high-throughput genotyping, and associated services. Collectively, these centres should have platforms for next-generation sequencing, Sanger sequencing, high-throughput genotyping, transcriptomics, proteomics, etc. These centres should also be equipped with state-of-the-art data storage and bioinformatics facilities. The services provided should cover the sequencing of human, microbial, animal, and plant genomes.

A central National Genome Data Repository (NGDR) consisting of Sri Lankan human, microbial, animal, and plant genomes should be established. Setting up such a repository would enable Sri Lanka to capture and collate genetic and genomic data generated in small-scale genomic projects carried out at individual institutional levels as well as those arising from international collaborations in the country.

The need to set up the infrastructure described above and to provide equitable access to the facilities and the data was envisaged in the National Research and Development Framework (NRDF), developed under the auspices of the National Science and Technology Commission of the Ministry of Science, Technology, and Research, and approved by the Cabinet of Ministers in April 2016. It was also anticipated that a policy would be developed to facilitate this activity. This document is intended to fulfil that need.

4. Policy Principles

To enable the establishment of world class genomic sciences in Sri Lanka

5. Policy Statements

1. The Genome Centres and the National Data Repository are common resources.
2. Subject to applicable governing mechanisms and taking into consideration equitable benefit sharing where relevant, appropriate access should be available to their services and the data in the repository.

6. Policy Goals

1. To develop state-of-the-art facilities for genomic research and genomic data management and sharing in Sri Lanka and globally.
2. To enable genomic research that contributes to economic development in key focus areas identified in the national research and development framework of 2016-*viz* food, agriculture, nutrition, health, environment, energy, information and communication technology (ICT), and knowledge services.

7. Applicability & Scope

This policy would be applicable to genome centres and to the NGDR regarding laboratory and funding services, data management, and IP rights, and would enable the efficient mining and deposition of national genomic data at the centres and proper management at the NGDR.

8. Policy Implementation

I. Strategies

- Next-generation sequencing (NGS) for genomic DNA
- Sanger sequencing
- High throughput genotyping
- Transcriptomics
- Proteomics
- Data storage, management, and access
- Bioinformatics

and

Large-scale data storage, management, and computational facilities that would be available at the NGDR.

The Policy Goal 2 would be achieved by

- the government and/or public-private partnership (PPP) providing the initial capital to establish the above facilities and an annual grant/allocation for the maintenance and upkeep of the facilities.
- the government and/or PPP partnership providing the initial capital to establish the NGDR and an annual grant/allocation for the upkeep of the NGDR.
- the centres that provide access to the services for a fee are subject to governing mechanisms.
- the NGDR providing access to data subject to governing mechanisms.
- Mandating and ensuring that those who generate genomic, transcriptomic, and proteomic data deposit their data in the data repository subject to governing mechanisms.

II. Responsibility & Authority

A governing body established under the ministry to which NASTEC is assigned would have responsibility and authority over the implementation of this policy. This entity may establish necessary committees for the purposes of grant allocation, facilitating training and coordination between genome centres, establishing and managing the NGDR, and any other aspect of the implementation of this policy.

III. Monitoring & Evaluation

The implementation of this policy would be subject to monitoring and evaluation by the National Science and Technology Commission.

9. Glossary

Genome – The complete set of genetic material present in a cell or organism

Genome Centre – A centre that has core facilities to study genomics, transcriptomics, proteomics or other related fields in biology.

Proteome – The entire complement of proteins that is or can be expressed by a cell, tissue or organism

Repository – A place where digital data is deposited, stored, and offered for common use.

Transcriptome – The sum total of all the RNA molecules transcribed from the genes of an organism

Annexure 01

Expert Committee

Chairman

Prof. Vajira H. W. Dissanayake

Head & Chair Professor of Anatomy
Director, Human Genetics Unit
Chairperson, Specialty Board in Biomedical Informatics
University of Colombo

Members

Prof. Athula Perera

Emeritus Professor
Faculty of Agriculture
University of Peradeniya

Prof. Kamani Tennekoon

Senior Professor of Molecular Life Sciences
Institute of Biochemistry
Molecular Biology and Biotechnology
University of Colombo

Dr. Darshan De Silva

Director, KDU Care
Senior Lecturer, Faculty of Medicine
Kotelawela Defense University

Dr. Gamini Samarasinghe

Additional Director
Plant Genetic Resource Centre
Department of Agriculture

NASTECC Representative

Prof. W. A. J. M. De Costa

Commission Member
Senior Professor
Department of Crop Science
Faculty of Agriculture
University of Peradeniya

Annexure 02

Participants of the Stakeholders Meeting held at Sri Lanka Institute of Development Administration (SLIDA) on 11th May 2018.

Prof. W. L. Sumathipala, Chairman, National Science & Technology Commission

Dr.ChinthikaGunasekara, Senior Lecturer, University of Sri Jayewardenepura

Dr. M A R Priyantha, Veterinary Research Officer, Veterinary Research Institute

Prof. D N Magana Arachchi, Associate Research Professor, National Institute of Fundamental Studies (NIFS) Kandy

Dr. O V D S JagathpriyaWeerasena, Senior Lecturer, Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB), University of Colombo

Prof. K B Suneetha Gunawickrama, Dept. of Zoology, Faculty of Science, University of Ruhuna

Prof. P Sevvel, Senior Lecturer, Faculty of Science, University of Jaffna

Maj. W.M.M.S Bandara, Senior Lecturer, Faculty of Medicine, Kothalawela Defense University

Dr. M. Dapanage, Research Officer, Sugarcane Research Institute

Dr.RasikaPerera, Senior Lecturer, Faculty of Medical Sciences, University of Sri Jayawardenapura

Dr.Sumadee de Silva, Lecturer, Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB), University of Colombo

Ms. R Thantrige, Scientist, National Aquatic Resources Research & Development Agency

Dr.SamathaRanasinghe, Registrar-Medical Administration, Ministry of Health

Prof.A.A.YAmarasinghe, Professor, Sabaragamuwa University

Dr. C. N. Walpita, Senior Lecturer, Sabaragamuwa University

Dr. K. Gajapathi, Senior Lecturer, Faculty of Science, University of Jaffna

Dr. R. B. L. Prabodha, Senior Lecturer, Faculty of Medicine, University of

Ruhuna Prof. Aresha Manamperi, Molecular Medicine Unit, University of

Kelaniya Dr.Sudarshanee Geekiyanage, Senior Lecturer, Faculty of Agriculture University of Ruhuna

Dr. K. P. R N Attanayake, Senior Lecturer, Dept of Botany, University of Kelaniya

Ms. D. R. Herath, Senior Scientist, National Aquatic Resources Research & Development Agency

Eng. H M A P Ratnayake, Additional Director, Institute of Post-harvest Technology

Dr. Mrs. R M N A Wijewardana, Principal Research Officer, Head of the Division, Institute of Post-Harvest Technology

Dr. M B A Ranathunga, Principal Research Officer, Tea Research Institute

Dr KalpaSamarakoon, Senior Scientist, National Science & Technology Commission

Dr R M Dharmawardhana, Senior Deputy Director, Industrial Technology Institute

Mr. D. M .S .I. Bandara, Senior Environmental Officer, Central Environmental Authority

Ms. Navodi Wickramasinghe Deputy Manager,
Coordinating Secretariat for Science Technology and Innovation (COSTI)

Dr. S. S. Iddamaldeniya, Veterinary Research Officer, Veterinary Research

Institute Dr. K. S. Udawela, Deputy Director, Rice Research & Development

Institute

Prof Anjula Premawardena, Dept. of Medicine, University of Kelaniya

Dr. J. M .Senevirathne, Department of Export Agriculture

Mrs. J Ponnampumarachchi, ADA In charge Labuduwa, Rice Research & Development Institute

Dr. D. A. Satharasinghe, Senior Lecturer, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya

Dr. Mrs. N Y Hirimuthugoda, Senior Lecture, University of Ruhuna, Faculty of Agriculture

Dr. Mrs. Lanka Ranawake, Senior Lecturer, Faculty of Agriculture, University of Ruhuna

Ms. Pradeepa Ranaweera, Environment Officer, Ministry of Environment

Dr. W. M. A. P Halmillewa, Senior Lecturer, Dept. of Microbiology, University of Kelaniya

Prof. Ms. B S M Siriwardena, Professor, Faculty of Dental Sciences, University of Peradeniya

Dr. P. R. M. P Dilrukshi, Head, Science & Technology Policy Research Division
National Science Foundation (NSF)

Dr GowryMoorthi, Principal Scientific Officer, National Science Foundation (NSF)

Dr. Mrs. M Vinobaba, Dean Faculty of Science, Eastern University of Sri Lanka

Ms. M. D Thilini, Scientist, National Science & Technology Commission

Dr.ThilinaWanigasekara, Deputy Director, Ministry of Health

Ms. N. I. Nimanthika, Assistant Director (Research), Plant Quarantine Services

Dr.SamanthiWasala, Assistant Director (Agriculture), Plant Genetic Resource Centre

Dr Y.A.M.S Wickramasinghe, Senior Lecturer, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya

Dr. ShermilaJayasena, Senior Lecturer, Faculty of Medicine, University of Colombo