Basic Science Research Policy (Draft)

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National Policy Format

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

Annex: Basic Science Research Policy expert committee

1. Policy Name

Basic Science Research Policy

2. Effective Date

3. Introduction

3.1 Background

Basic science is the study aimed towards advancement of scientific theories for the understanding of natural phenomena and/or making predictions. It is an integral part of all development programmes. For any country, the creation of a strong foundation in basic scientific research is a pre-requisite for applied research, innovations and economic growth. There cannot be applied research or innovations without basic research. Curiosity-driven basic research influences all human endeavours, including rational thinking. The benefits of basic science research are gained through the dissemination of fundamental knowledge and principles of science.

Strong political will, right policies with adequate funding and knowledgeable personnel are the main resources for fostering basic sciences in any country. The rationale for funding basic science research lies in the social benefits it brings through the implementation of its outcomes.

In a holistic approach to strengthen basic science research and its implementation, science education and research in social, behavioural and economic sciences should also be improved. In this context the importance of Mathematics and English language skills cannot be underestimated.

3.2 Need

Due to the misconception that basic science is less important, sufficient funds are not allocated to basic science research in Sri Lanka. Therefore, it is imperative to highlight the importance of basic sciences among the general public and most importantly among the policy makers. It should be emphasized that in order to harness the full potential of nationally important research projects an in-depth knowledge in relevant basic scientific disciplines is essential. As all major technological breakthroughs have originated through curiosity-driven basic science research, this aspect of science education and research, needs to be emphasized. These considerations are important when supporting basic science research. Unavoidable prerequisite nature of basic science to technological and economic development would justify the increased investment on basic science research programmes.

3.3 Purpose & Context

The purpose of this policy is to develop and strengthen basic science research in Sri Lanka, for the advancement of scientific knowledge and promotion of innovative skills needed for national development, through defining the role of the government in this process while identifying the responsibilities of researchers in basic sciences.

3.4 Rationale

Historically, Sri Lanka has been a nation of remarkable technological achievements especially in the fields of irrigation & water management systems, medicine, constructions etc. derived from indigenous basic knowledge system. In the present era, while contributing to advancement of knowledge, the basic sciences also provide the base and an indispensable link in the chain from basic research- applied research – product development – industrialization – economic development. Without such a base no country can achieve sustained development to attain long-term socio economic development and remain competitive in the global market.

In Sri Lanka, however, little priority is given for basic science research and very few scientific institutions are equipped and dedicated for basic science research. Furthermore, due to lack of opportunities and necessary facilities, a significant number of internationally recognised local scientists leave the country every year contributing to the brain drain in Sri Lanka. Taking into consideration of these facts, the National Research and Development Framework (NRDF) published in 2016 highlighted the need for formulating a national policy for basic science research.

4. Policy Principles

Basic science research provides the basis for the advancement of scientific knowledge leading to innovations and technology. Promotion of basic science research is therefore essential for achieving long term sustainable national development.

5. Policy Statements

- Invest in and promote basic science education at all levels
- Invest in and strengthen basic science research, build human resources and provide necessary infra structure
- Create public awareness of the essentiality of basic sciences for national development

6. Policy Goals

- Improved interest in basic sciences from the level of primary education
- Primary and secondary school curricula and evaluation methods with more emphasis on basic sciences and curiosity driven investigation
- Recognition of the importance of basic science research for national development
- Increased national budgetary allocation for basic science research
- Advanced central/regional laboratories equipped with state of the art equipment for conducting basic science research
- Catalysed technological advancement and socioeconomic development based on basic science research inputs
- Effective basic science knowledge dissemination network
- Public with a clear understanding on the need for basic sciences for technological advancement and socioeconomic development of the country
- Increased opportunities for basic science research
- Increased number of globally recognized basic science research projects undertaken by local scientists
- Increased international collaborations for globally recognized basic science research
- Increased output of internationally recognised research publications
- Incentives for high quality basic science research projects and scientists involved

7. Applicability & Scope

This policy deals with the importance of basic science, education and research towards advancement of knowledge and national development. It is applicable to all stakeholders involved in education and research including the relevant beneficiaries and policy planners.

8. Policy Implementation

I. Strategies

- Of the national budgetary allocation to research, allocate at least 30% for basic science research through relevant line Ministries and funding agencies

- Establish advanced laboratories equipped with state of art equipment and Centres of Excellence for conducting basic science research at national and provincial levels.

- Make provisions to expose local scientists to advanced basic science research outside Sri Lanka

- Provide financial assistance for foreign trainings/collaborations at advanced research institutes

- Guide scientists to adhere to research ethics and code of conduct when conducting high quality basic science research.

- Facilitate the involvement of the non-state organizations with funding for basic science research.

- Encourage scientists by providing incentives for publication of research in internationally recognized journals

- Establish a financial award scheme for outstanding basic science research

- Facilitate regular research symposia, workshops, etc. to disseminate knowledge derived from basic science research

- Involve basic science researchers to advise and solve national and industrial sector scientific issues

- Establish scientist positions, postdoctoral fellowship schemes, research professorships, adjunct professorships, and industry advisory positions in universities and relevant institutions to increase the critical mass of active research scientists involved in research in basic sciences

- Establish anindependent high powered scientific commission to advise the government on policy matters related to basic sciences and its research needsin order to ensure that this policy is implemented and continued on long-term basis irrespective of change of governments or ministerial portfolios.

- Use public media effectively to highlight the importance of basic sciences among the general public

- Encourage science journalists and scientists to write articles/books on recent developments in basic sciences for students and the general public

- Establish science parks at provincial level to popularize basic sciences among children and the general public

- Develop primary and secondary school curricula with more emphasis on basic science principles and practical components with curiosity-driven modules and demonstration kits in order to improve observation skills, critical and logical thinking, and analytical skills of students

- Develop English language skills and Mathematical skills at all educational levels to enable access to and sharing of global knowledge on basic sciences.

- Establish prestigious science studentship award schemes to create pathways for advanced level students with innovative and creative thinking to follow degree programmes in basic sciences

- Organize regular teacher training programmes to provide up-to-date basic science knowledge for school teachers

- Reap maximum benefits from the underutilized living and non-living resources in Sri Lanka and for their conservation, and sustainable utilization of the environment.

II. Responsibility& Authority

The Ministry responsible for the subject of Science, Technology and Research will have the responsibility to enact the policy and to coordinate with the relevant ministries and departments to implement the provisions of the policy through various legislatures of stakeholder organizations.

III. Monitoring & Evaluation

National Science and Technology Commission and the Ministry in charge of the subject of science, technology and research, will carry out Monitoring and Evaluation.

Annex

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