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Aligning the National Science and Technology Policy with the National Sustainable Development Strategy in Sri Lanka

30 Month (Final) Report

3 August 2007 to 31 March 2010

Environment

MIND

Society Economy

MUNASINGHE INSTITUTE FOR DEVELOPMENT

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Aligning the National Science and Technology Policy with the National Sustainable Development Strategy in Sri Lanka

This technical report describes results achieved during the 30 months of the IDRC funded project entitled "Aligning the National Science and Technology Policy with the National Sustainable Development Strategy in Sri Lanka".

Section 1 below, briefly sets out the background and summarizes the main outputs. The project launch workshop is summarised in Section 2 (details in Annex A). The final version of the policy review and strategy paper is summarised in Section 3 (details in Annex B), including two policy briefs (details in Annexes C and D). Section 4 describes how the study recommendations were formally presented to the Hon. Minister of Science and Technology, and possible follow up.

1. Overview

1.1 Background

Sri Lanka is a developing country with a population of 20 million. Its economy is primarily agriculture and services based, reporting a 6.0% growth rate with an estimated GDP per capita of US$ 1197 in 2005. However, progress on science and technology (S&T) and innovation has been slow. Recent documents have stressed that poor performance in the fields of S&T has been one of the reasons for failing to achieve full development and growth potential. For example, the government development plan (Mahinda Chintana: A Vision for Sri Lanka – A Ten Year Development Framework 2006-2016) has placed considerable emphasis on S&T and innovation, and also efforts were taken to revise national S&T policy to meet global changes (NASTEC 2009). In addition, specific technological policies also have been drafted (e.g., National Biotechnology policy).

Unfortunately, there is still a lack of scientific analysis on appropriate S&T and innovation and policy priorities needed to practically achieve the sustainable development goals of Sri Lanka. The key question is how to identify the right technologies and action plans to build innovation that is well suited to meet national sustainable development goals. To address this issue, crafting the correct S&T policy that builds local capacity and discourages blind imitation of foreign technologies is crucial. Better utilization of scientific and technological methods that are cost effective and easily accessible within the country, could improve living standards of people considerably, and make development more sustainable from the economic, social and environmental perspectives. However, due to the lack of awareness (especially among decision makers) and an effective policy framework, Sri Lankans are not able to enjoy the benefits of these technologies. Furthermore, the inability to adopt the latest scientific advances and technologies makes the country less competitive in the international market.

The East Asian "Tigers" (e.g., Korea, Singapore and China), provide a highly relevant, 40 year old experience, based on taking a different approach to building science and technology innovation (STI) than did countries in most other regions. They shared the distinction of not focusing initially on frontier science (Development Outreach-WB website[1]), instead focusing on:

[1] Development Outreach-WB website - http://www1.worldbank.org/devoutreach/

(a) building labor force skills through education at all levels;
(b) creating incentives and public institutions for discovering and adapting needed foreign technologies;
(c) using foreign investment to effectively create technological spillovers; and
(d) building focused projects for supporting the technology needs of industry.

MIND already has experience in a number of projects in developing countries, dealing with improving access to science education, and identifying and promoting innovative S&T in key infrastructure areas like agriculture, energy, water resources and transport.

We feel that the major problems in developing countries like Sri Lanka are that:
(a) it is not clear how S&T could support Sustainable Development (SD);
(b) decision makers need to be provided with practical and convincing macro-policies and detailed action plans to implement the results of scientific analysis; and
(c) human and institutional capacity building is needed to link S&T with SD.

1.2 Main Results and Outputs

Project Objectives

The overall objective of the research project was to facilitate the Science and Technology (S&T) policy process and the endorsement of an S&T policy document and implementation strategy for Sri Lanka by the government.

Both objectives were achieved, as described below..

Specific Project Objectives

1. Undertake background studies on key economic and social challenges and status of S&T in the national innovation system.

This goal was achieved by:
- carrying out a thorough literature search (assisted by IDRC)
- extensive discussions with key stakeholders from government, academia and business
- finalising a Policy Review and Strategy paper and two Policy Briefs in consultation with key government and academic institutions -- especially the Ministry of Science and Technology (M-S&T), National Science Foundation (NSF), National Science and Technology Commission (NSTC), Sri Lanka Association for the Advancement of Science (SLAAS), and the Third World Academy of Science – Sri Lanka Chapter (TWAS-SL).

2. Convene a dialogue among key national agencies and engage them in a national assessment to identify strategic S&T interventions and key linkages (including missing and weak links) to respond to the challenges for sustainable development. Sustainable development in this context refers to the imperative of balancing environmental sustainability, economic viability and social equity and justice within the development process.

This goal was achieved by:

- developing and applying a strategic analytical tool -- the Action Impact Matrix (AIM)
- conducting a comprehensive multi-disciplinary, multi-stakeholder AIM workshop (including 30 senior experts from government, academia and business)
- extensive dialogue with stakeholders before and after the workshop
- receiving regular advice and guidance from the Project Advisory Committee (including senior representatives form M-S&T. NSF, NSTC, SLAAS and TWAS-SL)
- preparation of the Policy Review and Strategy paper and the Policy Briefs.

Implementation of the AIM process permitted stakeholders to identify and prioritise key linkages among S&T options, economic sectors, and the main national sustainable development goals and policies. It also generated inputs for S&T policy (e.g., by identifying research and knowledge gaps, priority areas for technology development and innovation, and consolidating relevant information from the literature). Throughout, there was a sound balance maintained among the three key dimensions of the sustainable development triangle (environmental sustainability, economic viability and social equity and justice).

3. Facilitate the process of formal endorsement of S&T policy and implementation strategy by the government.

This goal was achieved through:
- the AIM workshop results, which served as a key resource for comprehensive, quantitative assessment of complex and interlinked systems
- analysing and prioritising issues
- identifying policy options
- building the multi-stakeholder driven consensus
- preparing and disseminating the Policy Review and Strategy paper and the Policy Briefs to senior officials and stakeholders, to facilitate implementation of results.
- Feeding the results of the AIM workshop, Policy Review and Strategy paper and the Policy Briefs into the government policy process, which culminated in the recently approved national S&T Policy.

2. Launch Action Impact Matrix (AIM) Workshop (see Annex A for details)

An earlier report (submitted in February 2008) described a comprehensive multi-disciplinary, multi-stakeholder AIM workshop (expert consultation) on 'Integrating and Implementing S&T policy and Projects within the National Sustainable Development Strategy', organised on Thursday, 30th August 2007, at the SLFI, Colombo 7, by the Munasinghe Institute for Development in collaboration with the Ministry of Science and Technology.

This meeting helped to launch a major project whose broad objective is to respond to a request made by the Hon. Tissa Vitarana, Minister of Science and Technology, to assist the government of Sri Lanka in promoting S&T in achieving national goals/policies and making development more sustainable. The AIM workshop was attended by 30 expert stakeholders from government, academia and business. It successfully identified and prioritised key links between S&T options and sustainable development goals and policies. Prior to and during the workshop, the MIND team worked in consultation with a group of experts drawn from key sectors and from development planning, to prepare the AIM which looked at the linkages between key sectors and national development plans.

The following key follow-up actions were identified and implemented:

1. Workshop results were presented to the Minister Hon. Tissa Vitarana , who agreed to follow up on the AIM findings. A major longer term objectives would be to help government develop a long term vision on S&T for sustainable development

2. Specific comments were provided to NASTEC on their draft S&T policy document, based on the workshop findings.

3. A broader S&T policy review and strategy paper was prepared, focusing on international experience, past lessons learned in Sri Lanka and abroad, S&T priorities (including both positive and negative impacts), key national needs, policy issues, and potential options – see Section 3 below.

4. MIND provided inputs to NASTEC and others in developing an action plan to implement S&T policy.

5. MIND disseminated key results of this workshop, to develop a sound S&T strategy and projects which incorporate S&T policy into national sustainable development strategy.

6. Motivating and helping scientists to better articulate their views on S&T policy matters.

7. Building on the synergies created during the AIM process to disseminate results widely and lobby jointly with others (e.g., SLAAS, NSF, NASTEC, TWAS-SL, etc.).

3. Policy Review and Strategy Paper and Policy Briefs (see Annexes B, C and D for details)

A comprehensive Policy Review and Strategy paper was finalised in consultation with key government and academic institutions -- including the Ministry of Science and Technology (M-S&T), National Science Foundation (NSF), National Science and Technology Commission (NASTEC), Sri Lanka Association for the Advancement of Science (SLAAS), and the Third World Academy of Science – Sri Lanka Chapter (TWAS-SL). A thorough literature search (assisted by IDRC) was carried out and extensive discussions were held with key stakeholders from government, academia and business during this process.

The rationale and objectives of the Policy Review and Strategy paper are set out in Section 1. The paper then investigates what underlies successful S&T and innovation policy and capacity building efforts (Section 2 and 3). Clearly, S&T and innovation could play a fundamental role in making Sri Lanka's development path more sustainable. However, the key question is how to identify the right technologies and action plans to build innovation that is well suited to meet national sustainable development goals. Therefore, a framework of correct S&T policy, strategy and action plans that build local capacity and discourage blind imitation of foreign technologies is crucial.

The past history of economic development and S&T policy in Sri Lanka are reviewed (Section 4). Sri Lanka has been experiencing a slow pace in S&T and innovation progress. Nevertheless, currently there is a growing recognition within the Sri Lankan government as well as in the scientific community, about the importance of S&T and innovation for sustainable development in Sri Lanka and the need of for building the local knowledge base. For example, the official government development plan (Mahinda Chinthana) has placed considerable focus on S&T and innovation, and also efforts were taken to revise national S&T policy to meet global changes. In addition, specific technological policies also have been drafted (e.g., National Biotechnology policy). However, there is still a clear lack of scientific analysis on appropriate S&T and innovation, and policy priorities needed to practically achieve the sustainable development goals of Sri Lanka.

In Section 5, the paper seeks to identify what key lessons can be learnt for future Sri Lankan S&T policy from both past experience in Sri Lanka and the literature. It then analyses how this knowledge can be built into a strategy that leads to specific action plans. An important step in this process was the multi-stakeholder AIM exercise (described earlier) to analyze the most relevant S&T options for the greatest macro level development impact. Results showed that ICT has the greatest macro potential while other technologies such as Nanotechnology and Biotechnology would have considerable sector level impact. The next challenge is to investigate these avenues further in order to identify specific practical projects that will create the desired macro and micro-level impacts on sustainable development.

The following two Policy Briefs were prepared, which summarized key results of the project:

- S&T Policy – Recommendations (Annex C)
- S&T Policy - Action Impact Matrix (AIM) (Annex D)

4. Final Dissemination and Potential Follow Up

A final meeting was held with the Hon. Tissa Vitarana, Minister of Science and Technology and senior government officials to disseminate the results of the study and discuss follow-up options. The key objectives of the MIND project were explained, and the results outlined earlier in Section 1.2 were summarised.

1. Undertake background studies on key economic and social challenges and status of S&T in the national innovation system.

2. Convene a dialogue among key national agencies and engage them in a national assessment to identify strategic S&T interventions and key linkages (including missing and weak links) to respond to the challenges for sustainable development. Sustainable development in this context refers to the imperative of balancing environmental sustainability, economic viability and social equity and justice within the development process.

3. Facilitate the process of formal endorsement of S&T policy and implementation strategy by the government.

The Minister expressed his gratitude for the work carried out by MIND, and noted that the practical application of the AIM approach and the multi-stakeholder, multi-

disciplinary process adopted were unique methods of mainstreaming S&T policies into national sustainable development strategy. He welcomed further collaboration in the implementation of the S&T action plan under consideration. In particular, MIND assistance was requested in a new area that had emerged as both a national and global priority – the role of S&T in urgently addressing climate change adaptation and mitigation issues.

MIND agreed to do its best to respond to these requests (subject to resource availability), especially in the context of some key results that had emerged from the S&T study. Energy technologies were identified among the top two priorities that would lead to win-win outcomes, by not only making development more sustainable, but also addressing climate change issues.

The original project proposal had envisaged a second stage, in which more specific areas of focus could be pursued that emerged from the first stage. Given the successful methodology development and application of the mainstreaming approach in Stage 1, the specific request of the Minister, and the expertise of MIND in the climate change area, it would be well worth considering a future Stage 2 project -- aimed at identifying an action plan for S&T policy and applications to the pressing problems of climate change in Sri Lanka.

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