CHAPTER 6

SCIENCE AND TECHNOLOGY POLICY ASSESSMENT

CHAPTER 6:

SCIENCE AND TECHNOLOGY POLICY ASSESSMENT

Back in Chapter 2, Aqueil Ahmad used science and technology "indicators" to support his assessment of the status of science and technology in Asia. Chapter 6 gives full treatment to indicators and explains their role in assessing the inputs, processes and outputs of science and technology in a country.

Three articles comprise this chapter. The first, by **A. Rajeswari**, builds the foundation for the discussion by defining "science indicators" and providing numerous examples of them and how they are used.

The second article is really a continuation of the Fiji piece, first introduced in Chapter 3. But here, **David Forsyth** focuses on the role of policy assessment in national science and technology planning. He bases his case on empirical evidence from Fiji. That enhances the reality-orientation of the chapter. But he also applies indicators as a tool for policy assessment in Fiji.

Forsyth's work in Fiji is included in this compendium on Asia because he bases his policy generalizations on empirical evidence. Further he couches his analysis in terms which help outside observers learn about the process of policy analysis. For example, in this part of his article, Forsyth introduces the concepts of "explicit" and "implicit" science and technology policies. He defines them and provides actual examples from the Fiji context. In other words, the Fiji material provides a "case" from which we can make useful observations about the application of policy analysis in any Asian country.

The third article, by **Shantha Liyanage, Asoka de Silva** and **Susantha Goonatilake,** is an even more comprehensive assessment of input indicators--this time in Sri Lanka. This is an excellent piece in which to see application of most of the lessons learned about science and technology policy management in previous

chapters. In effect it provides an opportunity to begin to integrate all that we have learned up to this point.

A number of authors appearing earlier in this compendium have talked about "science and technology policy assessment." It is an invaluable tool in the development and management of science and technology policies. This is the chapter in which readers can expect to learn the significance and methods of policy assessment. Reading these articles should help the reader find answers to the following basic problems:

1. Define "science indicators" and explain the different types.

2. Differentiate between input, application and output indicators.

3. Explain the functions of "technology policy assessment"and identify criteria used to assess science and technology policies.

4. Outline the essential features of a useful science and technology data base.

5. List the elements of an "efficient" science and technology policy instrument.

6. Identify contextual factors which can be expected to influence the outcomes of any science and technology policy.

7. Summarize the principal elements of Fiji's development policy, and the implications for its science and technology policies.

8. Explain why Fiji's explicit science and technology policies have largely failed.

9. Cite the reasons for ineffectiveness in the Sri Lankan science and technology planning process.

10. List the most significant implicit policies that have a bearing on technology choice.

11. Outline major elements of the questionnaire study conducted in Sri Lanka, detailing the methodology and types of institutions, executives and questions asked.

Once again, applying the learnings from this chapter probably requires some adaptation to the unique status and characteristics of science and technology policy in each country. Therefore, the following ten questions are offered as a basis for discussing the application of science and technology policy assessment:

1. What indicators are used by your government in formulating and evaluating science and technology plans?

2. What order of importance would you assign to the various types of indicators according to their usefulness in your country's science and technology policy and planning?

3. Identify some science and technology policy instrument which did not have the desired effect in your country. What contextual factors could have been responsible for its negative impacts?

4. Refer to Forsyth's tables of policies and instruments in Fiji and develop a similar table for your own country.

5. Analyze the science and technology resource requirements for your country by tabulating sectoral science and technology activities. Compare them to planned science and technology expenditures, and employment in budgeted science and technology activities.

6. Identify where the main thrust of explicit science and technology policies have been directed in your country. What development aims are these policies supporting? How successful have they been? How can you explain their degree of success or failure?

7. How well understood and implemented are your country's science and technology policies? What could be done to improve their appreciation and application?

8. Design a science and technology policy assessment questionnaire that would be useful in your country's context. Indicate which kinds of institutions and people you would sample.

9. Using the "Summary of Results" in the Sri Lanka paper as a guide, document your country's science and technology manpower and expenditure profile.

10. How serious is the problem of brain-drain in your country? What changes would you suggest to improve the situation?