PROPOSED NSTA PLANNING AND MONITORING SYSTEM FOR OPERATIONALIZING THE DEMAND--PULL STRATEGY IN SCIENCE AND TECHNOLOGY*

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The Philippines' National Science and Technology Authority (NSTA) translates the so-called demand-pull strategy through a number of mechanisms and linkages. Some of the mechanisms identified in this paper already exist. Some are still in the proposal stage, however. Three sets of mechanisms, not necessarily mutually exclusive, are discussed here. They are mechanisms or systems for planning, for implementation and for monitoring.

PLANNING

Participative Process: Science and technology planning under the leadership of NSTA has become participative. While the leadership of the Authority delineates the strategy and general directions, the various constituents participate in the process of identifying the major thrusts, programs and projects in support of the general strategy. The constituents refer to the agencies within the NSTA, i.e. the councils which have representation from the private sector, the government sector, the academic sector, and the geographic and political regions through the regional offices, as well as the other agencies and ministries, particularly those which are part of the National Research System or the Sectoral Research Networks.

S&T Priorities: The Science and Technology Plan that comes out of the participative process is a statement of priorities. Some value judgment is involved in the identification of priorities taking into account the needs, their urgency and the coverage of expected benefits. This involves a built-in mechanism for scanning the demands or the needs to be answered in the overall S&T effort.

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Project Selection: NSTA, through its councils and Special Projects Service, controls the award and allocation of grants-in-aid funds for research and other S&T activities. Using the pronouncements of the top leadership in the Authority on general directions and strategy as basic guiding principles, each fund granting body within the system screens proposals for project funding. The S&T Plan containing the program thrusts and the criteria for the evaluation of proposals guides the decision process. If the S&T Plan and the evaluation criteria have been formulated on the basis of a basic strategy, e.g., demand-pull strategy, then the process of translating the plans into working programs or projects are assured of being consistent with the strategy.

S&T Planning and NEDA: Our S&T Plan is an integral part of the National Development Plan. This is intended to guarantee that the S&T Plan itself is consistent with and guided by the needs of the other sectors described in the overall plan. This is also intended to make the other sectors conscious about the need for incorporating research and development activities in their own efforts guided by the priorities which have been set.

In the recent updating work of the National Development Plan, the Sub-Committee on Science and Technology was headed by the NSTA Deputy Director-General who was given a free hand in constituting his committee and who, in turn, tapped representatives from the various sectors concerned, including private industry.

In general, coordination with the central planning body, which is NEDA (National Economic and Development Authority), has been going on quite smoothly. NSTA recognizes NEDA's central coordinative role while NSTA and its councils are looked upon by NEDA as the legitimate authority in the S&T area.

NSTA Planning Services: The Planning Service of NSTA tries to be responsive to the needs of S&T decision makers by engaging in a number of service oriented activities. Again, in undertaking this management support work, it is guided by general policy pronouncements, one of which is the demand-pull strategy. Among the activities that could be mentioned are the following:

1. Scanning the environment through current news and literature search for issues with S&T implications

2. Reporting updates on research and development programs and other S&T activities from the various constituencies of the S&T community

3. Gathering updated and relevant statistics and indicators that have bearing on S&T development

4. Responding to *ad hoc* queries from management, from agencies and from the public in general regarding S&T related information

5. Operating and maintaining an S&T planning information base

The above activities are facilitated by the formation of planning liaison teams within the NSTA Planning Service. These teams are assigned to specific councils and agencies with the objective of not only monitoring their activities, but also serving as a resource base for planning activities of these agencies and units.

Linking Up With the Regional Units: The regional offices have been organized and are being strengthened to serve as the Authority's direct link with the people, particularly in the countryside. They are responsible for monitoring the needs in their respective areas which can be addressed by the NSTA, its agencies and the entities within its sphere of influence. They are responsible for communicating these needs to the leadership of NSTA, its councils and its agencies. They are also responsible for evaluating the potential in the region which can be harnessed effectively through the application of science and technology.

The regional offices, represented by regional directors, are envisioned to become part of the Regional Development Councils--in the same way as NSTA is treated as an integral part of the NEDA.

Lined up as a future activity of the NSTA Planning Service is a program to orient regional S&T planning officers on the activities and concerns of the NSTA agencies as well as its central services like planning, special projects and others. This can be done through a structured orientation program, and perhaps more effectively, through actual involvement in these activities, at least during the orientation period.

Science Promotion Activities: Science promotion activities can be utilized as avenues for inputs in the operationalization of the demand-pull strategy and subsequent planning steps.

A Science Promotion Institute (SPI), for instance, gets in touch with a wide population base through its various promotional activities. In the process, it gets to know the people's attitudes, impressions and aspirations which can be very relevant inputs in the identification of priorities. These inputs can also be gathered through actual surveys and dialogues. In turn, the NSTA leadership can set the tone or direction for its promotion activities. Planning for a science fair, an exhibit, an inventors' week, or some media exposure should take into account the strategy that has been outlined.

Public Forums and Dialogues: Public forums and dialogues shall become a regular feature in NSTA affairs. These would serve as a mechanism to ventilate opinions on various S&T issues and to elicit demands or needs that require attention from the S&T community. They

can also be taken as an opportunity to inform or update the public on research results or technologies that are ready for commercialization.

Linkage with Professional Societies and Groups: The NSTA allocates a certain portion of its resources to support scientific conferences and publications which are usually carried out by professional societies or groups. The linkage can be made more meaningful if the professional societies are also utilized by NSTA as consultative bodies not only in the planning exercise but also in the solution of scientific and technological problems where these societies have unique expertise. As an informal linkage, NSTA scientists and professionals who are active members of professional and scientific societies can get across the aspirations and goals that NSTA wants to achieve with various forms of support.

IMPLEMENTATION

Technology Utilization Units: NSTA responsible for technology disseminaton and utilization of research results. Two distinct services appear to be needed in this respect. One is extension work that could cover as wide a range of beneficiaries as possible. The other would be marketing and negotiating for commercialization of technologies developed or adopted. Continuous interface with users would provide some assurance that the NSTA and its agencies are in touch with reality--the problems, the challenges, the opportunities.

Coordination of National Efforts: To maximize the returns on scarce resources earmarked for S&T activities, it is deemed necessary that the allocation and control of these resources be centralized in the hands of NSTA and its councils. This will ensure a more efficient programming of funds, minimize the duplication of efforts, and assure the involvement of technically competent authorities.

MONITORING

The NSTA has been made responsible for the certification of agencies or projects as part of the National Research System. In the evaluation process, NSTA monitors the implementation of programs consistent with its defined goals and strategies.

The Science Foundations: Likewise, NSTA issues certifications to science foundations. Under this scheme, NSTA monitors the activities, including the financial operations, of said foundations. In this way, effective monitoring of investments in S&T activities by this non-profit sector is carried out.

Evaluation of Projects: NSTA and its councils evaluate projects in progress and upon completion. This is a mechanism for continuously monitoring the accomplishment of said projects in relation to predetermined target outputs.

Executive Review: The NSTA top management conducts an annual executive review of its agencies to monitor the progress of implemented projects. This provides an opportunity for the agencies to hear top management pronouncements on issues, strategies and directions. In turn, top management is briefed on needs, on accomplishments and on plans.