

UNITED NATIONS STATISTICAL INSTITUTE FOR ASIA AND THE PACIFIC

**Second Workshop on Forging Partnerships in Statistical Training
in Asia and the Pacific
23-24 November 2004, Bangkok, Thailand**

**GUIDELINES FOR THE ASSESSMENT
OF THE ROLE OF STATISTICAL TRAINING INSTITUTES AND THEIR TRAINING
ACTIVITIES IN NATIONAL DEVELOPMENT OF COUNTRIES IN THE
ASIA-PACIFIC REGION**

By the Staff of the Statistical Institute for Asia and the Pacific embodying comments and suggestions made on a First Draft by the 2nd Workshop on Forging Partnership in Statistical Training in Countries of the Asia-Pacific Region held in Bangkok in November 2004, with contributions from Gonzalo M. Jurado, Consultant.

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I. BACKGROUND

A. Terms of Reference

The First Workshop on Forging Partnerships in Statistical Training in Asia and the Pacific held in November 2002 in Bangkok called attention to the need for more extensive coordination and closer cooperation among statistical agencies involved in capacity building efforts in the Asia-Pacific region and for a more careful evaluation of their statistical training activities. To achieve these ends, the Workshop proposed, first, the establishment of a statistical training network in the Asia-Pacific region and, second, the installation of an assessment system that will ensure high quality of training activities, professionalism of statisticians, and integrity of statistical output in the countries of Asia and the Pacific.

The Workshop was held in the context of an international environment in which developing countries tried vigorously to accelerate their national development. The national statistical agencies (NSAs) being at the center of the national statistical systems in these countries accordingly found themselves under heavy pressure to make a contribution to the achievement of national and international development goals. How to reinforce and strengthen the abilities of the NSAs to make such a contribution bore heavily on the concerns of the Workshop.

This paper responds to the second proposal of the Workshop, e.g., to suggest guidelines for the assessment of statistical training programs in the countries covered by an Asia-Pacific network. In view of concerns that NSAs also respond to the demands of national development, the paper also suggests guidelines for the evaluation of the capacities of statistical training institutes serving NSAs and other elements of the national statistical system to contribute to the realization of NSA objectives in particular and to national development objectives in particular.¹

B. Organization of the Paper

This paper is organized in the following manner. It lays out the national statistical system, of which the NSA is the central component, and its broad objectives in relation to national development goals in Section II. In Section III, it describes statistical training institutes and proposes a general framework for their evaluation in terms of the goals of the national statistical system in general and of NSAs in particular. The paper proceeds to describe training activities in Section IV. In recognition of unique requirements of these activities, the paper proposes in Section V, in supplementation of the earlier general framework, a framework that is specifically applicable to training activities. It then suggests guidelines along the lines of the modified framework that can be used in the assessment of training activities in Section VI. In the concluding Section, the paper makes some remarks on the need for continuously updating the guidelines to ensure their responsiveness to the circumstances of the individual Asia-Pacific countries.

¹ The first proposal, that of establishing an operational framework for such a network, will be addressed by another paper.

II. THE NATIONAL STATISTICAL SYSTEM

The national statistical system may be defined as consisting of the national statistical agency and the other entities, public and private, national and local, that have responsibility in collecting and compiling the statistics and other quantitative information indispensable to the formation of official statistics. In the broadest terms, its obligation is to provide the statistical basis for policy decisions and actions to promote and accelerate national development. To what extent it is succeeding in meeting its obligations is a question to which the answer is of great significance to the national interest.

A. The National Statistical Agency

Along with other agencies of government, NSAs are expected to contribute to the achievement of national development goals. This means concretely, following their mandates, producing the hard, truthful, and timely quantitative information on the various dimensions of the national community – the people, the economy, the social system, the political structure, and the natural environment, among others—that are necessary for use of government officials in policy making, of business leaders for decision-making, of academic people for research, and of the public for general information. It also means satisfying demands for statistical advice to persons in authority in the public and private sectors on issues of importance to the government and the people. It also means having plans of statistical development, both for the medium- and the strategic-term, for producing and disseminating the statistical information corresponding to the actual and expected needs of the country.²

B. Operational Realities

NSAs are circumscribed in their ability to implement statistical development programs by certain operational realities, prominent of which are limitations in staff, equipment and the budget.

1. Technical Capacity

A few of NSAs have large staffs of technical personnel and abundant supply of the modern physical equipment necessary for statistical work but most have only modest technical and administrative staffs and limited quantities of tools. The few are able to produce a vast amount of important statistical material and carry out training activities covering a wide variety of subjects and functioning regularly over time but most have rather modest statistical productive capacity and can undertake only occasional training programs focused on a limited range of topics.

Reflecting those differences, NSAs differ in the breadth and depth of their statistical compilation. Most of them compile what can be called standard official statistics, the statistics collected and compiled in the normal course of events. These include Demographic, Social, Economic, Natural Resource, and Environmental Statistics. On the other hand only some not all compile statistics that are the focus of current and time-

² See the works of the Strategic Statistical Development Plan Task Team (also called PARIS21 Task Team) and the papers published under its auspices in PARIS21 Task Team website. www.paris21.org/htm_SSDP.htm

bounded national or international interest, including indicators arising from targets of the United Nations global summits and development goals of the Millennium Summit such as, for instance, Human Development Indicators and Indicators of Millennium Development Goals. Several not all also conduct training programs not just in the compilation of official standard and extraordinary statistics but in the mastery of what can be called methodological statistics-- the foundation subjects of statistics as a science -- like Sampling Methods, Census Procedures, and Statistical Methods.

2. The Budget

On another level, many NSAs perennially confront budgetary limitations. While budgets measured to the requirements of the agency permit the recruitment and retention of high-caliber staff, the improvement of in-house human capital, and the acquisition of modern equipment, the same cannot be said when the budget is limited. In this instance, NSAs achieve their targets to extents below their preferences.

C. Other Elements of the National Statistical System

For other elements of the national statistical system, the duty is the same -- to produce the quantitative information indispensable to the formation of official statistics. The same technical and budgetary handicaps afflicting NSAs afflict other entities in the public sector and produce basically the same consequences.

The situation is different in the private sector. Here entities produce statistics and other quantitative information only to the extent permitted by the profit motive. Such extent may or may not be in full satisfaction of national development requirements.

Despite various individual components doing outstandingly well in completing their tasks, the national statistical system as a whole clearly can use support and assistance for the enhancement of its overall performance.

III. GUIDELINES FOR ASSESSMENT OF STATISTICAL TRAINING INSTITUTES

A. Mandates

Asia-Pacific countries have established statistical training institutes (STIs) in either of two ways: one, by setting up independent statistical training institutes and, another, by forming the institute as a training division of the NSA. The institute's mandate tend to be broader in the first instance, to assist the entire national statistical system, than in the second instance, to directly improve the institutional capabilities of the NSA. At bottom, however, the STI in both cases has one over-riding responsibility: to train professional and non-professional statisticians to man the country's statistical system, including specifically the NSA, to enable the system to efficiently and effectively provide the statistical foundations of national development.

Whether as independent entities or adjuncts of NSAs, the STIs' main activity is obviously to conduct training programs for actual or would-be statistical personnel. The extent to which the institutes succeed in implementing these programs defines the extent to which they are succeeding or failing to meet their own mandates. They, as institutions, as well as the training activities they undertake, must be evaluated in terms not just of their own

objectives but of the objectives of the NSAs and the entire national statistical system as well.

An Evaluation Framework for Statistical Training is shown in Figure 1. From national and global statistical development requirements (representing the goals to be satisfied) arrows (representing mandates and resources) flow downward to NSAs, to STIs, and to training activities of STIs and from there upwards (representing outcomes and impacts) back to STIs, to NSAs, and finally to national statistical requirements.

B. General Framework for Assessment of Statistical Training Institutes

Assessment is a complex process; it means rating a training institute at various points in time on how it measures up to a predetermined set of standards. It means determining systematically and objectively the relevance, effectiveness and impact of the institute in the light of its objectives. Differently stated, assessment is a critical analysis of the factual achievements or results of a training institute in terms of its avowed goals.

In terms of Figure 1, assessment involves a comparison of the downward arrows with the upward arrows, a judgment as to whether the STI or NSA, buttressed by its training activities, is successful or not in attaining the ultimate goals of national statistical development.

Guidelines for assessment must satisfy certain considerations. They must be:

- a. Comprehensive as to cover all aspects of the institution but specific enough not to miss essentials of the institution being evaluated.
- b. Capable of generating information useful for strategic planning, program development, and quality improvement (of the relevant institution).
- c. Capable of identifying and reflecting best practice (in statistical work).

The assessment framework for STIs established to support the national statistical system in general and the NSAs in particular must be characterized by the foregoing considerations and must be objectives oriented.

The centrality of performance indicators in the assessment process cannot be over-emphasized. These indicators give a quantified measure of the extent of achievement or non-achievement of specified targets. At the most elementary level, they indicate the degree by which a participant has acquired new knowledge, the degree by which he/she has translated this new knowledge into concrete improvement in his/her work assignment. At the higher level, they indicate the measure by which this new knowledge/new improvement has strengthened the statistical basis of the final goal of national development.

The formation of performance indicators is beyond the scope of this paper, however.

The assessment guidelines proposed below are for use of Technical Persons outside of or independent of the national statistical system but who are thoroughly conversant with its workings. They may come from academe, some scientific organization, or some non-politically inclined statistically-oriented professional group. Respondents are, at the lower level, participants and their work supervisors, at the intermediate level, officers of the STI

or NSA that have responsibility in the planning and implementation of training programs, and at the highest level, the Senior Officials themselves of the STI or NSA.

The Technical Persons will ask Respondents questions that are answerable with simple “yes” or “no” or with exact quantitative information. Answers to these queries will provide basis to qualitative judgments that will have to be made by the Technical Persons in later stages of the assessment.

(To participant respondents):

Did you learn new knowledge from the courses offered by the institute and which you have attended?

Have you translated this new knowledge, if any, to actual performance in your work assignment?

(To directors- and officers- respondents)

How many persons were given training in each of the training programs?

Has the institute been responsive to requests for assistance from the NSA? Or from other elements of the national statistical system?

Has it mobilized its material and technical resources to accommodate these requests?

Has it used the advice and support of shareholders (such as NSA officials, business leaders, and academic personnel) in the planning and implementation of training programs?

Where the goals of the training programs achieved?

Are these goals still valid?

Should new needs now be addressed?

(To Senior Officials respondents):

Is the statistical system, including NSA, now producing statistics in greater quantity and in wider diversity?

Is the technical advice of the system, including NSA, now more frequently sought by responsible authorities?

Are the statistics produced by the NSA and other state statistical agencies now being more widely used than previously?

Is the statistical system, including NSA, now commanding greater respect and sympathy from various sectors, public and private?

On the basis of answers to such questions as shown above, the Technical Persons can form qualitative judgments to conclude whether the STI has been “5. strongly successful,” “4. moderately successful,” “3. neither successful nor unsuccessful,” “2. somewhat unsuccessful,” and “1. extremely unsuccessful” in the attainment of national statistical development goals.

Finally, actual costs and benefits in monetary terms can be compared to arrive at a final judgment as to whether the institute is succeeding in meeting its mandate. Relevant questions will include:

How much was expended in wages and salaries of trainees, lecturers and supporting staff?

How much went into cost of equipment, supplies, travel, and other inputs in the execution of the training activities?

What is the monetary value of the resulting enhanced stature of the STI or NSA?

Obviously, a cost-benefit analysis is not an easy exercise for the simple reason that while costs or inputs are easy to estimate, benefits or outputs (or outcomes or final impacts) can be extremely elusive. How can one monetize the enhanced credibility of the STI or NSA? **(This use of cost-benefit analysis for the STI or NSA may not be separable from the cost-benefit evaluation of training activities described in VI. C.)**

C. Assessment Findings and Recommendations

The assessment must come up with unambiguous findings as to whether the STI or NSA has been successful or not in the attainment of the statistical goals of national development. The assessment must also bring up recommendations on how to enable the STI or NSA to become more effective and more efficient in responding to this requirement.

IV. STATISTICAL TRAINING ACTIVITIES

A. Objectives of Training

In principle, the training activities undertaken by STIs have only two objectives: (i) to raise the efficiency of statistical administration whether at national or sectoral level (capacity building) and (ii) to increase the quantity and diversity and improve the quality of official statistics produced by the national statistical system. In practice, however, their objectives are more specific, to teach statistical personnel techniques for producing specific statistics, to introduce personnel to statistical series required by the international community, or to enhance these personnel's understanding of statistical methodology.

To assess these activities, it is important to emphasize that these activities pass through stages of development before they can be monitored or assessed. They pass through stages of conceptualization, planning, and preparation before they are actually delivered. After delivery, or even before actual delivery has come to an end, they are evaluated. Finally, after sufficient time has passed, they are evaluated to determine their final impact. Any success or failure in any of these stages can give rise to favorable or unfavorable final impact. These stages need to be kept in mind when assessing the impacts of training programs.

B. Stages of Development of Training Programs

1. Conceptualization

Conceptualization is that stage when the statistical staff, especially that at the highest level, begin to realize that a training program in some statistical field is necessary in order to satisfy the agency's legal mandate. Outlines of the program are laid out: the subject or topic to be dealt with, the length of time for the training program, the venue, etc. Specific details are left out for the next -- the planning—stage to tackle.

2. Planning

This is that stage when all details pertaining to the program are worked out: the scope of training materials to be prepared, the identity of person(s) to prepare the training

materials, the identity of lecturers, the details of the curriculum, the qualifications of participants, deadlines for specific activities, etc.

3. Preparation

The tasks spelled out or springing from the plans are actually carried out: training materials are prepared, the lecturers get ready to perform their duties, prospective participants are screened, teaching paraphernalia are prepared and made available, the academic schedule is laid down, the venue is checked for readiness, etc.

4. Actual Delivery

This is that stage when the various tasks as spelled out in the academic program are carried out: the lecturers deliver their lectures, the directors carry out their management functions, and the support staff renders the appropriate support services. Obviously, this is also the stage when participants show their response or reaction to the training programme.

5. Internal Evaluation

This is evaluation carried out from “within” by participants, lecturers and responsible officials at the closing stage of the training program. At this stage, participants evaluate, through a questionnaire, the appropriateness or relevance of the lectures, the clarity and understandability of teaching materials, the effectiveness of lecturers, etc. In turn, in executive sessions, lecturers, other trainers, and responsible officials express opinions as to whether participants had been receptive to the lectures, and whether the administrative system and other aspects of the program had been supportive of the training program.

6. Post Delivery Evaluation

This is the review process immediately following the delivery of a training program. The purpose is to make an immediate assessment of the success or failure of the training program in general terms, from pedagogic to administrative considerations. Some of the points considered in this stage are: were the lectures, power-point presentations, quizzes, etc. well-received or well-understood by the participants, what was right or wrong with the academic schedule, what is to be done with remaining academic materials, lecture notes, exercises, quizzes: are these to be archived, or placed in the library, or circulated to a few interested persons, or disseminated to a wide audience? What was right or wrong with the administrative system? What lessons could be learned from the exercise?

The extent to which the requirements of these stages are satisfied determines the extent to which these stages succeed in achieving their objectives. As these stages attain their purpose, so does the training activity as a whole.

V. PROPOSED EVALUATION FRAMEWORK FOR TRAINING ACTIVITIES

A. The Evaluation Framework

The evaluation framework earlier introduced is here supplemented with a framework specifically aimed at training activities, rather than training institutes. This framework is that one followed by the United Nations System Staff College for managing productive training activities. The UNSSC calls this the Learning Quality Support & Assurance (LQSA)³ framework. It is more or less identical to the assessment framework used by the Australian Bureau of Statistics (See the Australian country paper responding to SIAP's questionnaire on the establishment of a network for statistical institutes for countries in the Asia-Pacific region). The focus of this LQSA framework is the measurement of *outputs, outcomes and impacts*, identifying each of these at the level either of Individuals or Institutions. To complete the framework the present paper adds the measurement of *inputs*. The terms are explained in the following manner. Consider a learning activity.

1. Input

Inputs are the human and material resources poured into the activity. These will typically include labour, instructional materials, equipment, facilities and off-site expenses such as travel, subsistence allowances, transport of materials, and rentals. These are noted at the *institutional* level. The measurement and valuation of these inputs is of particular importance when the training activity is evaluated via cost-benefit analysis.

2. Output

Output includes theoretical knowledge and practical skills gained by participants from the training, which are needed by the NSAs. In addition, increased motivation in improving their job performance would also be expected.

A learning activity can give rise to satisfaction (dissatisfaction) with the learning activity on the part of the participant. Satisfaction (dissatisfaction) is the *output* of the course and this is noted at the level of the *individual*—the participant. The LQSA calls this state: Level I -- Reaction.

If the participant is satisfied (dissatisfied) with the course, he/she experiences an increase (no increase) in knowledge, skills and information learned. The increase (no increase) in knowledge is the *output* of the course and this is observed at the level of the *individual*—the participant. The LQSA calls this state: Level II -- Learning.

3. Outcome

Outcomes are effects of the outputs, and these are the contributions to capacity building, institutional improvement and sustainability of improvements.

If the participant experienced an increase (no increase) in knowledge, he/she shows improvement (no improvement) in his/her on-the-job performance. The improvement (no improvement) in on-the-job performance is the *outcome* of the course, a state

³ United Nations System Staff College, Learning Quality Support & Assurance (LQSA) Project, 2004.

observed at the level of the *individual*. The LQSA calls this state: Level III -- Performance Change.

4. Impact

Impacts are effects of improved performance of the national statistical system as a result of statistical training, which could positively contribute to the formulation of development policy and influence national development to the desired pace or direction.

If the participant exhibits improvement (no improvement) in his/her on-the-job performance, he/she contributes to an increase (no increase) in tangible and intangible results for the organization. The increase (no increase) in results is the *impact* of the course and this is observed at the level of the *organization*. The LQSA calls this state: Level IV -- Organizational Results.

Finally, if the organization increases (does not increase) its results, it generates organizational benefits that are higher (less) than learning costs. The net benefits (costs) are the *impact* of the course, observable at the level of the *organization*. The LQSA calls this state: Level V -- Return on Investment.

B. Required Tasks

For a training course to generate positive outputs, outcomes, and impacts, from Level I to Level V, the LQSA requires that a number of actions must be carried out, as follows:

At Level I, participants must be selected on the basis of the relevance of the learning activities to their work, their educational qualification, and their observed commitment to learning.

At Level II, support mechanisms must be put in place to reinforce learning retention and facilitate practical application.

At Level III, on-the job performance must be monitored.

At Level IV, the effects of learning must be isolated from other influences and tangible results must be converted to monetary values

At Level V, the return to investment must be calculated.

The evaluation must necessarily cover all stages of the activity, from conceptualization to full implementation.

The evaluation process must assess the contribution of the training institute in the development of the NSA so that it can comply with national and international requirements.

VI. SPECIFIC GUIDELINES FOR ASSESSMENT OF TRAINING ACTIVITIES

The issue here is whether training activities achieve the STIs' objectives as well as the objectives of the NSA and other elements of the national statistical system. Responses to this question will give guidance to whether training activities should be continued, expanded, maintained at existing level, scaled down, or discontinued.

The diagrammatic representation shown in Figure 1 can be cited at this point. The figure shows the direction of assessment: from the downward arrows representing mandates, resources and other inputs to the upward arrows representing outcomes, impacts and other outputs.

Also, the observations made earlier on the importance of performance indicators can be repeated at this stage. However, as also observed, their formation is beyond the scope of the present paper.

The guidelines proposed below, embodying the spirit of the general framework that was applied to statistical training institutes and the framework proposed by LQSA, are for use of Senior Officials of the agency tasked to evaluate the effectiveness of the training activities of the training institute. Respondents are officers of the institute that have responsibilities in the planning and implementation of training programs, previous participants, their supervisors, lecturers, and resource persons.

Following the LQSA model, the results of the activities of the training institute can be classified into outputs, outcomes, and impacts. To arrive at conclusions concerning the significance of these activities, two types of questions are asked: one type, objective questions answerable with "yes" or "no" by respondents and, second, qualitative questions answerable with "5. strongly agree," "4. mildly agree" "3. neither agree nor disagree," "2. mildly disagree" or "1. strongly disagree" by the administering official.

The objectives of statistical training activities cannot possibly deviate from the agency's mandated objectives of producing and disseminating statistics on the various dimensions of the society for use of the government for policy making, of the private sector for business decision making, of the academic sector for research, and of the public for self-enlightenment – the ultimate objectives. On ground level, however, these objectives translate into more specific, more mundane goals, such as to train the agency's personnel in collecting and compiling statistics more efficiently and more effectively.

A. Outputs

To the extent that it was well prepared and carefully implemented, the training program would generate an output consisting of satisfied participants, fulfilled academic and administrative personnel. To determine this point, such questions as the following may be asked:

To be answered yes or no by appropriate respondents:

Were the participants in the training activity strongly motivated to learn?

Were they academically qualified?

Was the training activity relevant to their work?

Were the training materials clear, unambiguous, and easy to understand?
Were the persuasive effects of modern instruction tools (powerpoints, projections, graphics, etc.) exploited during the training activity?

Were the lecturers inspiring and encouraging in their way of teaching?

Here the views that came out of any internal evaluation, if one had been conducted, with respect to (a) training materials, (b) teaching methodology, and (c) the Lecturers, would be relevant.

To be answered and graded on a scale of 1 to 5 (as already defined) by administering official, using the answers to the above questions as guide:

- a. The training program produced satisfied participants
- b. The program gave rise to fulfilled academic directors and lecturers.
- c. The program gave rise to satisfied administrative support staff.

To the extent that it gave rise to satisfied participants, the program should result in an increase in knowledge, skills, and information by participants.

To be answered yes or no by appropriate respondents:

Has there been any improvement in the level of knowledge or skills of those who participated in the training programme?

Have the participants been given increased opportunities to interact amongst themselves with a view to reinforcing learning retention and facilitating practical application of knowledge?

To be answered and graded on a scale of 1 to 5 (as already defined) by administering official using the answers to the above questions as guide:

- a. The participants now exhibit greater knowledge of statistical collection, processing and dissemination.
- b. The participants now show greater efficiency in performing their tasks.

B. Outcomes

To the extent that participants benefited from the training program in terms of knowledge, skills and information, their enhanced abilities and attitudes should result in measurable outcomes at the organizational level. In this connection, such questions as the following may be asked:

To be answered yes or no by appropriate respondents:

Has improvement in the level of knowledge and skills been demonstrated in measurable terms?

Is the statistical output of pertinent staff now greater in quantity, cross-sectionally or in time coverage?

Is the statistical output now of better quality, with less avoidable errors? Is statistical production now faster, respectful of deadlines?

To be answered and graded on a scale of 1 to 5 (as already defined) by administering official, using the answers to the above questions as guide:

- a. The agency is now producing a greater quantity of official statistics.
- b. The agency is now publishing more books, pamphlets or bulletins, in addition to various yearbooks.
- c. The agency is now disseminating advice to a greater number of users, public and private.

C. Impacts

To the extent that participants now produce a greater quantity of official statistics, they should generate institution-wide, tangible and intangible, improvements in the work of the agency. To ascertain this, such questions as the following may be asked.

To be answered yes or no by appropriate respondents:

Is the organization now producing official statistics in greater quantity and increased reliability, appropriateness, and timeliness?

Are the statistics the organization is now producing now increasingly serving as the basis of analysis of academic researchers and official policy makers?

Are there now in the statistical office a greater number of technically trained people?

People who can also be trainers?

Does the organization now have a greater capacity for producing official statistics?

Does the organization now have enhanced capacity for interacting with the highest officials of the land through its officials and other ranking officers?

To be answered and graded on a scale of 1 to 5 (as already defined)by administering official using the answers to the above questions as guide:

- a. The agency is now widely acknowledged for the reliability and timeliness of the statistical information it releases
- b. The technical advice coming from the agency is received with trust and confidence by the government.
- c. Users, including the private sector, academe and the general public, make extensive use of the statistical information coming from the agency in their decision-making, research, and public discussions.

To the extent that the NSA or the entire statistical network is now complying with its mandate more efficiently and more effectively, including specifically responding to developmental needs, it benefited from the training activities in terms of its personnel, procedures and processes. These benefits must be summed up and matched against the cost of producing them, in order to have an idea of the “return to investment.” To ascertain this point, such questions as the following may be asked:

To be answered yes or no by appropriate respondents:

Can the benefits from training activities be distinguished from benefits from other sources?

Can these benefits be expressed in monetary terms?

Do you have any estimate of the monetary value of these benefits?

To be answered and graded on a scale of 1 to 5 (as already defined) by administering official using the answers to the above questions as guide (using the same cost-benefit framework for assessing training institutes as mentioned in III.C):

- a. The net benefits-costs ratio of the training program is greater than unity, implying that the training program has been a socially worthwhile investment.
- b. Intangible benefits flowing out from the training program directly or indirectly, not calculated with precise figures in the benefits-costs analysis, have been greater than associated intangible costs to the agency.

D. The Assessment Framework in a Decentralized System

The foregoing framework will be difficult to implement in a decentralized system where participants, after training, return to their individual offices, one or two trained individuals in a sea of untrained co-workers. How can their output be disaggregated from the collective output? To what extent can the work of one or two individuals affect the work of a large collective? How can the work of a single branch office impact on the work of the central office? On the STI or NSA itself?

Nevertheless, even while individual peculiarities are respected and given due weight, the relevance of the analytical framework as a whole remains undisturbed.

The flows downward and upward in Figure 1 remain correct.

E. Assessment Findings and Recommendations

The sense of the answers of respondents and the replies of the administering official himself/herself must provide the basis for concluding that the outputs, outcomes, and impacts of the training programs have contributed to the enhancement of the capacity of the STI, NSA, or other relevant agencies for meeting their mandate and responding to the challenges of national development. Unambiguous recommendations must be given whether the training activities should be continued, expanded, maintained, or terminated.

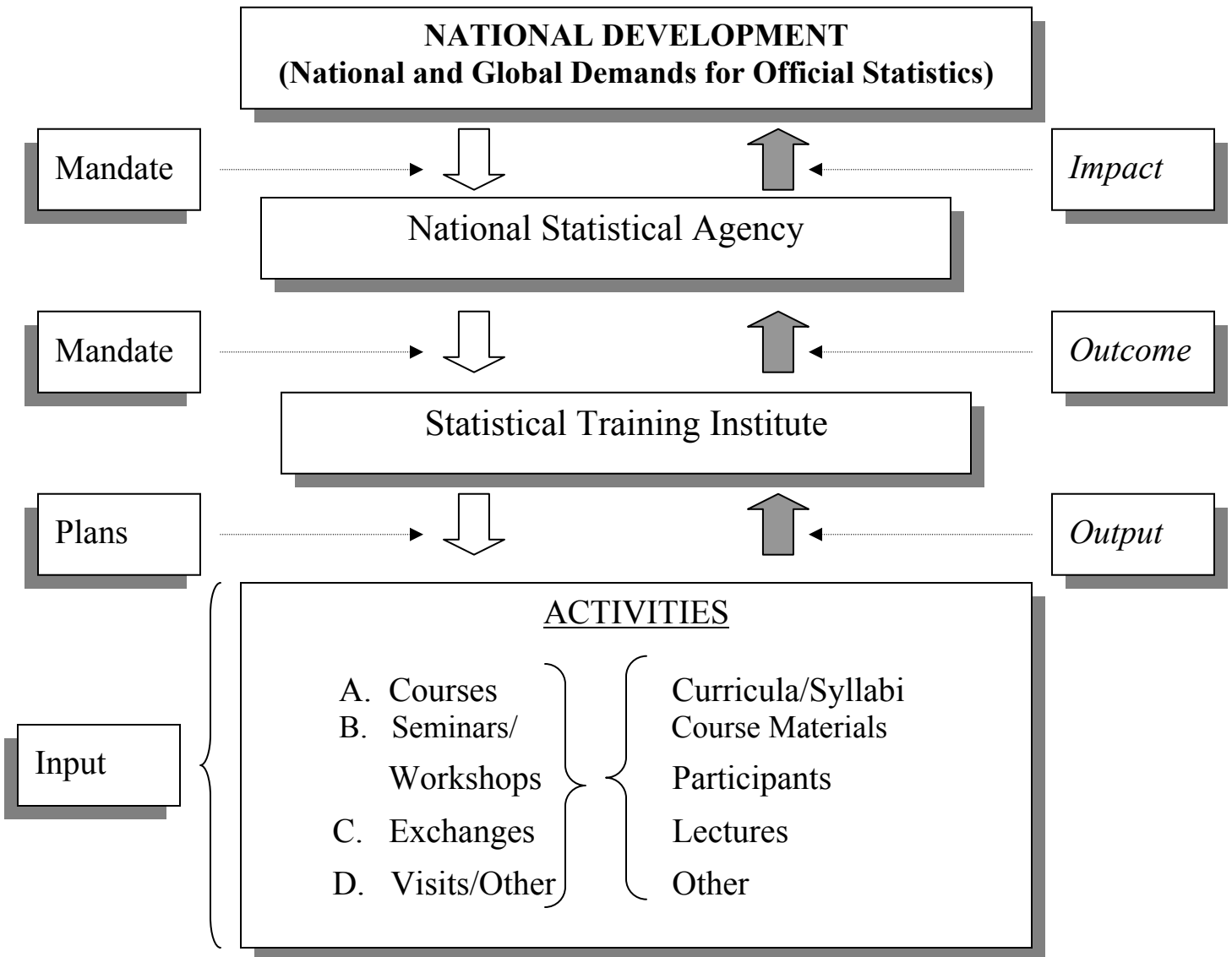
VII. REMARKS

These guidelines are preliminary in character, to be modified and improved, as the case may be, to suit the specific circumstances and needs of individual national statistical agencies. Comments and suggestions for improvement are most welcome.

XXXXXXX

15 October 2004

Figure 1. Evaluation Framework of Statistical Training.



Analytical Framework:

Output (O) is a function of Input (I), that is

$$O \leftarrow f(I)$$

Empirical Issues:

How is input measured?

Physically or Financially.

How is output measured?

With performance indicators of output, outcome and impacts.