

Review Manual

**Procedure for Performance
Review of S&T Institutions**

Review for Excellence in S & T

NATIONAL SCIENCE AND TECHNOLOGY COMMISSION

2011

NATIONAL SCIENCE AND TECHNOLOGY COMMISSION

Review Manual

for Performance Review of S & T Institutions

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1) Introduction and Purpose of the Review Manual

The purpose of this review manual is to provide guidance to the Science & Technology institutions and reviewers regarding procedures to be adopted to review the performance of Science & Technology institutions.

The performance of an institution may be defined as its ability to acquire and use resources efficiently and to produce outputs that are relevant to its stakeholders and are consistent with its objectives.

Most Science & Technology institutes are public institutions. They must conscientiously exercise and be seen to exercise their responsibility to the society and economy of the country. They need to respond to significant changes taking place in society, economic and institutional environments and address issues such as those related to poverty, globalization, wealth creation and integration of new technologies.

The main purpose of performance evaluation is to reflect on what has been done in the past, as no system can be efficiently run without regular observation and checking of its results and outcomes leading to transformations and improvements.

A review culture is necessary for enhancing competitive advantages and for assuring state support. Review methodologies pioneered by the science and technology systems have been operational in advanced countries for several decades.

The reasons for conducting a review can be listed as follows:

- To obtain information on how to improve activities of the institution.
- To induce a self-reflection by the scientists on the results and outcomes of S&T activities, the way they are performed leading to strategic orientation towards the desired goals.
- To assess effectiveness of the activities.
- To encourage good management of S& T institutes.
- To improve internal and external transparency.
- To recommend future resource commitments.
- To gather information for policy change.
- To inform the stakeholders about the institutional competencies

Transparent disclosure of the review procedures and results is seen as necessary for the progress of an institution. The reviews are frequently carried out by external experts and provide information to meet external accountability requirements.

2) Review Methodology/Procedure

The **Science & Development Act No. 11 of 1994** mandates the National Science and Technology Commission to review the progress of S&T institutions in relation to objects set out in Section 2 of the Act. The NASTEC in consultation with the institution to be reviewed will decide on a schedule for the review. This will be followed by NASTEC requesting a Self-assessment Report from the CEO of the Institution. The format for the Self-assessment Report is given as Section 3 of this manual.

A review team comprising of 3 - 7 members will be identified by NASTEC in consultation with the institution being reviewed and formally appointed to review the progress of the institute. The team will be guided by the directions given in the guidelines for the perform review of S & T Institutions (Section 7)

The review process has 4 distinctive phases:

1. Preparation for review
2. Visits of review team to institution
3. Preparation of draft report by Review team
4. Preparation and submission of the final review report by the review team to NASTEC

(1) Preparation for the review

1. NASTEC will identify institution/s to be reviewed in consultation with the relevant CEOs.
2. NASTEC will forward a copy of the format for Self – Assessment report to the relevant CEOs.
3. The institution is expected to complete the Self– Assessment Report and submit to NASTEC within 4 weeks.
4. NASTEC and the institution agree on the composition of the review panel identified from the pool of trained reviewers and appoint them.
5. Review Team will study the Self-Assessment Report.
6. Director, NASTEC meets the Review team and the CEO of the institution to be reviewed about 6 weeks in advance of the visit to the institution to identify lines of inquiry and further information and documentation they need during the review visits. The team will also identify individuals and groups they wish to meet during the visit and agree with the CEO on dates and time table for the review visits.

(2) Visit of Review Team to Institution

- Initial meeting of review team with CEO and a group of representative staff for briefing by the Review Team and CEO regarding the objectives of the review, clarifying why and for whom the evaluation is being done, describing the benefits to the institution and cultivating rapport and support for the evaluation.

- Presentation by CEO of the institution on the management, operation, organization, major scientific activities of the institution and contributions to national development.
- Verification of the judgments in the institute's self evaluation report by review team
 - a) Laboratory /workshop/field tours
 - b) Discussion with members of different categories of staff. (Discussions with Governing Board, scientific staff, technical staff, administrative staff, clients who obtain services of the institution and other relevant stake holders.)
 - c) The use of multiple methods and crosschecking or 'triangulating' the results is recommended during review. Triangulation refers to the use of different information sources, methods, types of data, or evaluators to study an issue from different perspectives and thereby arrive at more reliable findings.
- Review Team will study supporting documents (as given in page 15)
- Discussion among members of the review team about the overall observations / findings / conclusions

(3) Preparation of the draft report

On final day of review, Review team discusses their findings with the CEO and senior staff of the institution.

(4) Preparation and submission of the Final Report to NASTEC

- The Team leader will prepare the final report with the rest of the Team within 2-3 weeks of the Review visits, and submit the report to Director, NASTEC.
- The final report should include observations/ findings/ conclusions as well as constructive suggestions/ recommendations to improve performance.

*** Follow-up action by NASTEC**

- NASTEC submits the report to the Ministry of Science and Technology and the CEO of the institution for necessary action.
- NASTEC makes the report publicly available with the necessary consents

3) Format for Self-assessment Report

The format of the self-assessment report presents a focused and objective approach to self-evaluating the organizational performance of the institution.

- Part I - Executive Summary
- Part II - Main Report
 - (1) Information about the Institution
 - (2) Status of Performance during the last three years (2011 – 2013)
 - 2.1) *Scientific and Technological Excellence*
 - 2.2) *Management and Operational Excellence*
 - 2.3) *Leadership Excellence*
 - 2.4) *Contribution to National Development*
 - (3) SWOT Analysis
 - (4) Future Plans and Resource Requirements

Name of the Institution

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Part - I - Executive Summary

Summary of the Report

(one page)

Part - II - Main Report

(1) INFORMATION ABOUT THE INSTITUTION

(a) History of the institution

Establishment, Act, Mandate etc.

½ page

(b) Organizational Chart

1 page

(c) Main Activities

Pl. tick the appropriate cages

• Research	
• Development activities	
• Analytical services	
• Consultancy services	
• Quality assurance services	
• Laboratory accreditations	
• Instrument calibrations	
• Environment hazards monitoring	
• Science popularization	
• Facilitating R& D activities	
• Funding S& T activities	
• Information dissemination	
• Research recommendations	
• Others (Please specify)	

(d) Sources of Funding

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(e) Main Facilities

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2) STATUS OF PERFORMANCE DURING THE LAST 3 YEARS (2011 – 2013)

(2.1) SCIENTIFIC AND TECHNOLOGICAL EXCELLENCE

a) List of projects/programmes undertaken from (2011 – 2013)

List of Projects/Programmes	Status	
	On-going	Completed
2011		
2012		
2013		

b) For each project/programme please indicate briefly the following (You may give it as an annexure)

- i) Objectives of the project/program
- ii) Relevance to organizational mandate
- iii) Relevance to national needs
- iv) Total budget and source of funding
- v) Outputs (no. of publications, communications, patents etc.)

c) Important outcomes from projects/programmes

List/ brief description on

- Technologies transferred
- New products developed
- Accepted recommended practices
- Other

d) Planning S & T / R & D projects/programmes

Brief description on-

- Involvement of a properly constituted research planning committee in project/activity planning
- Application/ consideration of comprehensive budget preparation guidelines and standards in project planning
- Incorporation of foreign collaborations
- Encouragement of partnership with private sector
- Involvement of outside experts from relevant fields in project planning
- Responsibility of researchers in preparing project proposals and budgets

e) Success in building teams

- *Interdepartmental programmes*
- *Inter-institutional programmes*
- *International collaborations*

f) Human resource and infrastructure development for leading edge scientific capabilities

- *Trainings given to staff on new and emerging technologies*
- *Infrastructure developed*

g) Other S & T development activities

• Test services/ calibration	
• Funding R & D activities/projects	
• Extension/ advisory services	
• Training programmes	
• Conferences/ workshops and other awareness programmes	
• S & T popularization activities	
• Others	

h) Prestigious awards

<ul style="list-style-type: none"> • Awards received by staff members • Awards received by the institution
--

i) Institutional and other publications

Type of publications	No of publications		
	2011	2012	2013
Technical reports			
Consultancy reports			
Advisory materials/ Information leaflets			
Newsletters			
Other publications Training manuals, Scientific databases, Books, etc.			

(2.2) **MANAGEMENT AND OPERATIONAL EXCELLENCE**

a) **Financial Management**

Please indicate details of funds received from different sources during the past 3 years, and the amounts allocated for different activities.

Source of funds	Amount (Rs)		
	2011	2012	2013
Total			

Votes/ Activities	2011		2012		2013	
	<u>Allocated</u>	SPENT	<u>Allocated</u>	SPENT	<u>Allocated</u>	SPENT
Total						

b) **Human Resource Management**

- **Staff strength**

No of employees	2011	2012	2013
S & T personnel			
Administrative staff			
Technical staff			
Supporting staff			
Total			

- **S & T staff and their qualifications**

Qualifications	2011	2012	2013
PhD			
M Phil			
M Sc or equivalent			
Basic Degree or equivalent			

- **Staff development**

No of employees	2011			2012			2013		
	Cadre	No filled	Vacancies	Cadre	No filled	Vacancies	Cadre	No filled	Vacancies
S & T personnel									
Administrative staff									
Technical staff									
Supporting staff									
Total									

- **Types of training given to staff**

No of employees trained	2011		2012		2013	
	S & T staff	Other	S & T staff	Other	S & T staff	Other
Postgraduate level						
Diploma						
Short-term trainings						
Study tours/conferences						
Total						

- **Incentives for staff**

Types of incentives given to employees and basis of incentives
(Indicate incentives and other schemes implemented to improve the quality of staff)

c) **Infrastructure Management**

- Usage of infrastructure

	USAGE (No. of hours/week)
Specialized laboratories/ facilities (list)	
Major/ special equipment	

- **Measures taken to enhance institutions operations to meet current and future mission needs**

<ul style="list-style-type: none">• New laboratories/buildings• Accreditations• New equipment• Services (electricity, water etc.)• Maintenance
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- **Safety measures**

<p>Safety measures implemented for integrated safeguards and security of staff and equipment</p>
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(2.3) LEADERSHIP EXCELLENCE OF INSTITUTION

a) Recognition

Recognition as a local/regional/national asset
- Please justify

b) Relevance of activities

Relevance of the institution to the needs of the community/region and the country
- Please justify

c) Contribution towards national economy

Contribution towards harnessing and linking regional resources leading to growth and diversification of local/regional/national economy

d) Self sufficiency

Ability to generate revenues and become self sufficient

(2.4) CONTRIBUTION TOWARDS NATIONAL DEVELOPMENT

Institution's contribution to national development

(3) SWOT ANALYSIS

3.1) Analysis of Strengths, Weaknesses, Opportunities and Threats

Strengths	
Weaknesses	
Opportunities	
Threats	

3.2) Recommendations to overcome weaknesses/ threats

<p>Suggestions and Recommendations</p>
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(4) FUTURE PLANS AND RESOURCE REQUIREMENTS

	Resources Required
<ul style="list-style-type: none"> • R & D activities/projects 	
<ul style="list-style-type: none"> • Extension/ advisory services 	
<ul style="list-style-type: none"> • Training programmes 	
<ul style="list-style-type: none"> • Conferences/ workshops and other awareness programmes 	
<ul style="list-style-type: none"> • S & T popularization activities 	
<ul style="list-style-type: none"> • Others 	

4) Review Cycle

- NASTEC initially proposed to evaluate each S & T institution once in every 5 years. However, now this review cycle is shortened to 4 years.

The schedule for the review is developed by NASTEC in consultation with the institutions to be reviewed.

5) Review Team

Review Teams will be appointed by NASTEC in consultation with the CEO of the relevant institution, taking into consideration the objectives and functions of the relevant institutions.

Composition of the Review Team:

- At least one senior scientist from a similar S&T institution
- A senior academic having a record of Research & Development work.
- An industrialist who has been involved in Research & Development activities or a stakeholder of the institute services
- A social scientist/economist

6) Training of Reviewers

Reviewing of S & T Institutions should be carried out in a professional manner. Therefore the reviewers will be specifically trained for this purpose by NASTEC.

The training program will emphasize the following:

- (1) The Reviewers should follow the guidelines laid down in the Review Manual.
- (2) It is important for the Review Team to win the confidence of the managerial staff, scientific staff and other employees of the institution being reviewed and make it clear to the staff of the institution that the objective of the review is to assist the institution to improve its performance.
- (3) The review panel, at all times must respect the individuals and traditions of the institution and handle sensitive issues carefully. Similarly the institutions internal environment has to be considered. Where the organizational culture promotes open and frank discussions and organizational learning and improvement, a highly participatory and openly self-critical evaluation approach can be adopted. In contrast, where the culture rewards competition and individual achievements over teamwork an approach that protects the anonymity of individuals may be more appropriate.
- (4) The review team must take special effort to involve all categories of stakeholders in discussions, to verify all observations including information given in the "Self assessment report".
- (5) In reviewing an institution it is important also to take into consideration the external conditions under which the institution operates.

- (6) The reviewers should accept the primacy of review business for the duration of the review process.
- (7) The reviewers should display tact and sensitivity and adhere to their mandate when assessing internal policies, strategies and management practices and the way in which they are applied. Constructive suggestions and recommendations to overcome constraints identified during the review process should be included in the Review report along with the sources used and information obtained.

It is important for the panel members to keep a record of the sources of information referred to and clarifications requested along with any tentative conclusions arrived at during the review process (visit). This will allow later reflection on the review process and the results and also allow findings and suggestions to be more easily substantiated.

- (8) The reviewers should accept individual responsibility for the assigned task within the team and collective responsibility for the review team's judgment.

In brief, the Review Team must be mindful of the following:

- **Utility** - The review should serve the information needs of intended users.
- **Feasibility** - The review should be realistic, prudent, diplomatic, and cost-effective.
- **Propriety** - The review should be conducted legally, ethically
- **Accuracy** - The review should be based on sound information (i.e. defensible sources, valid and reliable information, justified conclusions, etc.)
- **Improvement** - The review should lead to the improvement of the performance of the institution being reviewed.

**DOCUMENTS/INFORMATION TO BE CONSIDERED
DURING THE REVIEW PROCESS**

- Self Assessment Report
- Act with latest amendments
- Corporate plan
- Annual reports
- Institute's publications during the last 5 years
- Action plan for the current year
- Research papers of staff members
- Other relevant reports

7) Guidelines for the Performance Review of S & T Institutions

The Guidelines are categorized under two sections to be reviewed.

1. Management Assessment
2. Output Assessment

7.1) Management Assessment

The ability of an institution to produce useful and relevant outputs depends on among others internal policies, strategies, management practices the way in which these are applied. By evaluating these critical aspects of an institution, one can identify causes that enhance or hamper the performance of that institution.

The following aspects of management are to be assessed:

- I. Institutional response to external and internal environment in planning organizational strategy
 - II. Planning S & T Programs and priorities
 - III. Planning S & T/ R & D Projects
 - IV. Project management and maintenance of quality
 - V. Human Resource Management
 - VI. Management of organizational assets
 - VII. Coordinating and integrating the internal functions/ units/activities
 - VIII. Managing information dissemination and partnership
 - IX. Monitoring, evaluation and reporting
- When assessing different institutions it may be necessary to review the aspects listed above and modify to suit the specific institution.
 - Each management practice listed under the different aspects of management (I – ix) may be assessed based on the table given below and the most appropriate response should be indicated by placing a cross (x) in the relevant cage. These responses along with comments/ evidences noted should be used as a basis for identifying good management practices as well as weaknesses.

* Management practices assessment

(1) Always used/ always considered/ involved/analyzed	≡	Strong
(2) Occasionally used/ considered/ involved/analyzed	≡	Moderate
(3) Not used/ Not considered/ Not involved/Not analyzed	≡	Weak

i) **Assessment of Institutional Response to External and Internal Environment in Planning Organizational Strategy**

The external environment of an institution (e.g. consumer/industry needs, government policies, market conditions, partners, and competitors) will critically affect its performance. Science & Technology institutions need to regularly assess these in order to plan and respond effectively to challenges and opportunities, and to deliver results that are relevant and useful.

The external environment of Science & Technology / Research & Development institution is vibrant due to changes in stakeholder conditions and needs. It is important for an institution to periodically review and adjust its directions and goals, to meet these changes. These adjustments in turn may require significant actions, such as changes in focus and programs, organizational structure, and management strategies.

Management practice	Level of Practice (Performance Indicators)			Comments / Evidence
	Strong	Moderate	Weak	
Government policies and development goals are used/ considered to establish goals and plan organizational strategy for the institution				
The organizational mandate (as specified by the relevant Act) is considered in strategic planning				
The institution is responsive to changes in Government policies and strategies				
Factors such as strengths, weaknesses, threats and opportunities are considered in strategic planning				
Stakeholders needs are taken into consideration in strategic planning				
The Board of Governors is involved in strategic planning				
The extent to which staff members are involved in strategic planning				
Government allocations and alternative funding opportunities (donor funding) are considered in strategic planning				
The extent to which policies and plans of the organization are reviewed and updated				

Additional observations (if any)

ii) Planning S & T programs and setting priorities

A program is “an organized set of research projects, activities or experiments that are oriented towards the attainment of specific objectives”. Programs are higher in research hierarchy than projects. Program objectives should be consistent with organizational strategies and reflect user needs and development goals.

Management practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
National development goals are considered in planning programs & setting priorities				
Board of Governors participate in planning and priority setting of program				
The extent to which the staff of the institution participate in programme planning and priority setting				
Stakeholder interests are considered in programme planning				
The extent to which programmes are planned and approved through appropriate procedures				
The extent to which the availability of funds (government allocations and other funds) generating funds are taken into consideration in planning programmes				
The obtaining of necessary equipment is considered in planning programmes				
Stakeholders are represented in the institution's planning and review committees.				
The extent to which socio economic and commercialization of aspects are considered in programme planning.				
Effectiveness and efficiency of institutional procedures in approving new S& T programmes.				

Additional observations (if any)

iii) Planning S&T / R&D Projects

A project is a set of activities designed to achieve specific objectives within a specified period of time. A project includes interrelated research activities or experiments, schedule of activities to be completed within a specific time period, budget, inputs and outputs, focused towards intended beneficiaries. Projects are the building blocks of programmes. For an institution to achieve its objectives, it is necessary for projects to be well planned in terms of their expected outputs, activities, and input requirements.

Management practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The staff is provided with guidance for project planning				
Previous research results/data are used for planning projects				
The extent to which the institution follows a formal process for preparation, review and approval of projects				
The extent to which organizational plans (e.g. medium-term plan, corporate plan, strategy etc.) are used to guide project selection and planning				
Multidisciplinary projects/ activities are encouraged by the institutions				
Foreign collaborations are encouraged and incorporated in planning.				
Partnership with private sector is encouraged by the institution				
The extent to which development research/activities are considered in planning projects				
The extent to which basic research are considered when planning projects				
The degree to which adverse effects on environment are considered in planning projects				

Additional observations (if any)

iv) Project management and maintenance of quality

Proper project management and quality assurance/improvement practices are needed to ensure effective research operations, the quality of output and achievement of desired objectives.

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The effectiveness of the procedures for resource allocation at different levels (organization, departments, program etc.)				
Ensuring that instruments, equipment and infrastructure facilities are sufficient for implementation of projects				
The effectiveness of administrative procedures and support for project implementation (procurement and distribution of equipment and materials, transport arrangements, etc.)				
Formal monitoring and review processes are used to direct projects towards achievement of objectives				
The extent to which the researchers are supported by the required technical / field staff.				
Ensuring that established field / lab methods, and appropriate protocols are used				
Research projects/ S& T activities are completed within the planned time frame.				
Ensuring that scientists / researchers have access to adequate scientific information (scientific journals, internet, international databases, advanced research institutes, universities etc.) that strengthens the quality of research.				
The extent to which quality assurance practices are followed by the institutions				
Ensuring that researchers/ scientists have access to computers and necessary software				

Additional observations (if any)

v) Human Resource Management

Availability of an adequate number of qualified staff and effective management of human resources are key determinants of organizational performance. Establishing a cadre of qualified staff takes many years. To keep pace with new developments in science, technology, and management, it is also essential to upgrade staff regularly. Staff planning, selection, recruitment, evaluation, and training are key components of human resources management that need to be in place for effective performance of an institution.

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution maintains and updates staff information in a database (including bio data, disciplines, experience, publications, projects)				
The institution, plans and updates its staff recruitments based on programme and project needs				
The effectiveness of the selection procedures and the schemes of recruitment				
Training is based on institution and program objectives and on merit,				
The effectiveness of the procedures in promoting a good working environment and maintaining high staff morale.				
The effectiveness of staff performance appraisals				
The effectiveness of rewards and incentive schemes in motivating the staff				
The effectiveness of managing staff turnover, absenteeism and work interruptions.				

Additional observations (if any)

vi) Management of organizational assets

Organizational assets include not only staff buildings, equipment, and finances, but also include assets such as knowledge, technologies developed, intellectual property, and even credibility and reputation. A continuous effort is needed to protect all of these assets, because they are the basis for the sustainability of the institution and allow it to continue delivering quality research and service outputs.

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The ability of the institution to carry out its mandate and the assigned statutory powers				
Infrastructure (buildings, stations, fields, roads) is satisfactorily maintained.				
Vehicles and equipment (lab, field, office) are properly managed and maintained.				
The effectiveness of procedures to ensure that equipment are in working order				
The effectiveness of the institution's overall strategy in generation and proper utilization of funds				
The extent to which the institution identifies opportunities for income generation and cost recovery				
The extent to which the intellectual property rights of the institute are protected				

Additional observations (if any)

vii) Coordinating and integrating the internal functions/ units/activities

The planning and coordination of units (departments, divisions, committees, research stations, etc.) and interaction among them are often neglected and it affects the overall performance of the institution. The organization of these units and the overall structure need to be reviewed from time to time to ensure smooth and efficient operations. The planning and coordination of units, logistics, resources, and information flows are necessary to achieve integration and smooth functioning.

Management Practice	Level of Practice (Performance indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The extent to which institution is evaluated internally and restructured based on current needs				
The effectiveness of internal communication and coordination mechanisms				
Institution's overall direction and coordination are provided by a central planning committee / unit.				
The extent to which different units are assigned clearly defined functions				
Responsibilities of research / management staff are clearly identified				
Effectiveness of using appropriate reporting procedures and feedback in management at different levels				

Additional observations (if any)

viii) [Partnership in managing information dissemination](#)

An important requirement of all S& T / Research & Development institutions is management of dissemination of technology and information to users. The partnership / linking up with other actors in Science & Technology and information system (including, universities, industries, private sector, international research organizations, extension, farmers etc.) promotes information exchange, collaboration, and cost sharing, and ultimately improves the quality and relevance of research.

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution systematically plans and performs dissemination of information				
The extent to which the institution plans and maintains linkages with key partners for sharing and dissemination of information				
The effectiveness of institutional procedures for technology transfer				
The effectiveness of the system to obtain feedback from different types of stakeholders				

Additional observations (if any)

ix) Monitoring, evaluation and reporting procedures

Monitoring (assessing ongoing S&T / research activities) and evaluation (evaluating the value, quality and results of research) are key management processes of public-S& T institutions. Monitoring and evaluation are also important for determining whether the institution is learning from its earlier achievements and failures. Monitoring, evaluation, and reporting procedures need to be properly designed (i.e. integrated into project planning and implementation) and periodically reviewed, in order to provide useful information for decision-making and accountability.

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution monitors and evaluates (M&E) its own activities periodically				
M&E is supported by an adequate management information system (MIS), which includes information on projects (e.g. costs, staff, progress, and Results).				
The extent to which S& T results and other outputs are adequately reported internally (e.g. through reports, internal program reviews, seminars).				
External stakeholders contribute to the M & E process in the institution				
The extent to which the results of M&E are used for project/ research planning and decision-making.				

Additional observations (if any)

7. 2) Output Assessment

When assessing the out put of an institution, the staff strength of that institution should also be considered. The major out put categories are listed below. It is necessary for the reviewers to select relevant out puts from the table and feel free to add to this list where necessary.

a) Types of outputs

- I. Technologies developed
- II. Technologies transferred to industry / entrepreneurs
- III. Information Dissemination / Extension
- IV. Research Publications
- V. Patents
- VI. Services (Testing, Calibrations, Consultations, Advisory and etc.)
- VII. Trainings
- VIII. Others

b) Output measurements

This framework for output identification needs to be tailored to the activities of individual organizations. The panel should feel free to include additional outputs when necessary.

Output Category	Nos.	General Comments on quality and relevance of outputs and productivity of institution
1. Technologies Developed <ul style="list-style-type: none">• New products / technologies• Improved products / technologies / laboratory methods• New planting materials / seed varieties		
2. Technologies transferred to industry / entrepreneurs <ul style="list-style-type: none">• Technologies developed locally• Foreign technologies adapted and transferred		

<p>3. Information Dissemination / Extension</p> <p><i>Publications</i></p> <ul style="list-style-type: none"> ▪ S & T institutional review reports ▪ Training manuals ▪ Advisory leaflets ▪ Maps ▪ Posters <p><i>Dissemination events</i></p> <ul style="list-style-type: none"> ▪ Workshops and seminars ▪ Conferences ▪ Exhibitions ▪ Media events ▪ Open days ▪ Demonstrations 		
<p>4. Publications</p> <ul style="list-style-type: none"> • Research papers in ISI journals • Other research papers • Conference proceedings • Books and monographs • Technical reports • Research reports 		
<p>5. Patents</p> <p><i>Individual</i></p> <ul style="list-style-type: none"> • Local patents • Foreign patents <p><i>Institutional</i></p> <ul style="list-style-type: none"> • Local patents • Foreign patents 		

<p>6. Services (Testing, Calibrations, Consultations, Advisory and etc.)</p> <ul style="list-style-type: none"> • Policies developed • Reviews of S&T institutions • Research grants awarded and administered • Funding for training programmes and other S&T activities • Monitoring of research projects • Data bases developed • S&T surveys and maps • Science popularization activities • Environmental impact assessments • Instrument calibrations • Consultancy services • Testing and analytical services • Vaccines / seed production and distribution • Germ –plasm conservation • Recommendations in S&T matters 		
<p>7. Training</p> <p><i>Staff training programmes</i></p> <ul style="list-style-type: none"> • Local • Foreign <p><i>Training programmes for stakeholders</i></p>		
<p>8. Other</p>		

✳ **Total S & T staff strength of institution**

✳ **Comments on productivity of institution based on outputs and S & T staff strength**

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8) Review Report

Guidance for preparing the Review Report

- ❑ The chairman of the review team will be responsible to submit the final report to Director, NASTEC.
- ❑ The report, in general, should not exceed 3000 words.
- ❑ The report should consist of following.
 - Introduction
 - Procedure adopted for performance review
 - Commentary sections on Management Assessment and out put Assessment
 - Comments on productivity of institution based on outputs and S & T staff strength
 - Overview of the Institution's performance and contribution to national development
 - Overall judgment on the different aspects based on the information collected on aspects listed under guidance for the performance review (Highlight strengths and good practices found by the reviewers in each aspect. Any weaknesses identified should also be clearly described)
- ❑ The draft report should be discussed by the review team with the CEO of the institution for factual observation before submission to NASTEC
- ❑ The final report along with raw data collected using the review manual (section 7) should be submitted to Director, NASTEC within 3 months from the date of last visitation to the institution.

9) Review outcome and follow up action

- NASTEC forwards the review report to Ministry of Science & Technology and CEO of the institution
- The CEO will plan and implement follow up action with the staff.
- NASTEC makes report publicly available with the necessary consents.

Annexure I

Summary of the Review Process

Activity	Responsibility	Time frame
1. Selection of institutions to be reviewed	NASTEC	
2. Consent of the institution	Institution and NASTEC	
3. Selection of Review Team	NASTEC	
4. Consent of the institution regarding review team	Institution and NASTEC	
5. Forwarding the self Assessment Template to CEO / of institution	NASTEC	
6. Appointment of the Review Team	NASTEC	
7. Training of Review Team	NASTEC	
8. Submission of Self-evaluation Report and other relevant documents to NASTEC	CEO of Institution	
9. Submission of the Self Assessment Report and other documents to the review panel.	NASTEC	
10. Meeting of review team at NASTEC after reading the documents	Review team	
11. Visit to institution by the review team for review	Review Team and Institution	
12. Preparation of the draft report and factual verification by discussions with the CEO / necessary staff members of the institution	Institution staff Review team	
13. Submission of the final report to NASTEC	Chairman of Review team	
14. Submission of the final report to Ministry of Science and Technology and CEO of the Institution	NASTEC	
15. Follow up action	CEO of the institution / NASTEC	

- **SUMMARY OF THE INSTITUTION'S CONTRIBUTION TOWARDS THE FOLLOWING OBJECTIVES**

Objectives	Institution's contribution
1. Promoting the use of S&T to achieve rapid economic development, improve the quality of life and alleviate poverty.	
2. Involving scientists & technologists in the formulation of policy & decision-making.	
3. Fostering S&T to develop self-reliance and to ensure the allocation of a reasonable proportion of GNP for S& T activities.	
4. Development of Indigenous technology	
5. Importation, adaptation and assimilation of technology for rapid growth in industry, agriculture and services.	
6. Production and retention of scientists, technologists and technicians of high caliber and competence.	
7. Providing opportunities for all persons to acquire basic education in Science and its applications and inculcating the importance of science, scientific methods and technology among them.	
8. Disseminating the benefits of S&T activities to all sectors.	
9. Strengthening Science & Technology cooperation among Scientists & Technologists of Sri Lanka and those abroad to access global knowledge	
10. Capability of continuously planning, evaluating, reviewing S&T activities and identifying and promoting priority areas that are likely to be of benefit to Sri Lanka	