PERFORMANCE REVIEW REPORT

Atomic Energy Authority – Sri Lanka

2015

National Science & Technology Commission

Review Team

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The Review Team

EXECUTIVE SUMMARY

The review was carried for the performance of AEA during the period 2011 to 2013 and its performances can be considered satisfactory. During this period, AEA undertook two large projects, one establishment of a Multipurpose Gamma Irradiator and other was National Center for Nondestructive Testing. Both projects which can be considered as flagship projects of this organization, have been successfully completed. The review team is pleased with the leadership given by AEA in completing these two projects, as well as the dedication and commitment of the staff members attached to these centers.

The AEA has also obtained cabinet approval to separate its operation into two independent entities such as Sri Lanka Atomic Energy Board for the promotion and encouragement and use of Nuclear Science and Technology for national development, and Sri Lanka Atomic Energy Regulatory Council for the regulatory practices involving ionizing radiation and safety, and the security of sources. The review team considers separation of AEA into two organization to be a major positive development during the period under review.

The review team acknowledges that AEA has taken the recommendations of the previous review very positively and has had implemented number of them. In this executive summary, we have highlighted two broad issues that requires the attention of AEA in moving forward.

- In order to have successful execution of plans, AEA requires committed and engaging workforce. In the absence of such workforce, no organization can move forward. The review team was made to understand during its fact finding visit and various discussion had with all the divisions, that an immediate attention should be paid to Human Resources Development function of this organization to achieve the desired outcomes.

- Special attention is also needed for Research and development activities as they are an integral and important part of any scientific institution. The goal would be to transfer developed technology to industry or entrepreneurs for the benefit of economic growth of the country. The review finds that the S&T staff who are engaged in R&D activities, are also engaged in providing services to the industry. Hence, the S& T staff have not been able to carry out research up to their potential that could lead to innovation and new findings despite having international collaborations and other external links.

The detail recommendations of the review are given under section 5 of the report. The recommendations should be assessed and follow-up actions should be carefully assessed and executed according to the prevailing status at the AEA.

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1. INTRODUCTION

1.1 History

The Atomic Energy Authority (AEA) of Sri Lanka was established in 1969 under the Atomic Energy Authority Act No. 19 of 1969, and has been functioning as the national focal point for the International Atomic Energy Agency (IAEA) ever since [1]. The AEA started functioning well from 2001 after receiving a new building with laboratory complex which enabled AEA to contribute immensely to national development as well as to participate internationally on nuclear technology research and other related projects.

The AEA is managed by a Board of Management and carrying out its activities according to mandate of the Act. The AEA is tasked to promote and utilize nuclear technology for the benefit of the country, and to ensure the protection of radiation workers, the public and the environment from harmful effects of ionizing radiation. It plays dual role, i.e. one as the National Regulatory Authority on Radiation Safety, other as an organization involved Research & Development and also to provide services to industrial sector in facilitating the utilization of nuclear technology for socio-economic benefits.

The AEA has seven scientific divisions, namely, the Radiation Protection & Regulations, Industrial Applications, Life Sciences, Non Destructive Testing, Multipurpose Gamma Irradiator facility, General Scientific and International Cooperation. The general finance and administrative work is handled by the Finance & Administration division. The Heads of all divisions directly reports to the Director General. Each scientific division has its own technical program which is approved by the Board. The Finance & Administrative Division provides necessary support services for all scientific divisions.

1.2 Recent developments

During the past few years, AEA has acquired technical capabilities and developed human resources needed to provide services to the national end-user [2]. The AEA receives its core funding from the Government Consolidated Fund. However, it generates about 60% of the recurrent expenditure by selling its diverse services. It has well qualified and trained staff and its own office and laboratory complex. Laboratories are well equipped with specialized equipment.

The AEA has undertaken eight main projects/programs during 2011 – 2013. The establishment of the Multipurpose Gamma Irradiator in Biyagama and National NDT Center in Kelaniya were major projects undertaken during this period.

The total number of staff was 140 at the end of 2013. Compared to 2011, the S&T staff strength of AEA has increased by more than 100%. The scientific and technical staff which comprises of 54% of the total staff has been continuously trained overseas through IAEA training programs. Administrative staff (10%) has been trained through the programs conducted by local training institutes. The capital expenditure in 2013 was Rs. 202 million compared to Rs. 76 million in 2011.

Relocation of AEA to IT Park in Malabe from its present location is one of the other major projects to be undertaken in 2014-2016. The Corporate Plan 2014-2018 [3] presents future programs planned for the next 05 years.

The AEA has already signed an MOU with ROSATOM, Russia for bilateral cooperation. Bilateral discussions are taking place at present with the governments of India and Pakistan to establish corporations for the development of atomic energy applications.

1.3 Actions taken after the first performance review

As recommended by the last Performance Review of NASTEC, a new Bill was prepared to separate AEA into two independent entities - Sri Lanka Atomic Energy Board for the promotion and encouragement of the use of Nuclear Science and Technology for national development and Sri Lanka Atomic Energy Regulatory Council which will be involved in the regulation of practices involving ionizing radiation and safety and the security of sources. The new Bill was approved by the cabinet on October 24, 2014.

The new Bill will repeal the AEA Act No. 19 of 1969 and reassign the existing staff to the new institutions. In accordance with this change, new Organizational Structures (OS) and Scheme of Recruitment (SOR) has been submitted to the Ministry of Technology and Research for review. Internal restructuring such as establishment of a separate General Administration and Operations Division with responsibility over finance, logistics, fixed assets and human resource management, and establishment of a National Nuclear Information Centre under the Public Relations Unit were already highlighted in the last NASTEC Review. However, the review team acknowledges that proper solutions to these recommendations can only be brought with the introduction of the new Organizational Structures (OS) and SORs.

Following recommendations, a Research and Project Evaluation Committee has been appointed under the newly established unit of Training & Evaluation to review new projects and to monitor the progress of ongoing projects/programs. A committee has been appointed to prepare a suitable scheme to facilitate and encourage staff to engage in postgraduate studies. Due to a new policy adopted by IAEA, only project team members are selected for IAEA training programs which address another issue identified in the previous review. An officer has been recruited for the function of Administration and Human Resources.

Procurement of an Office Automation System has been completed to introduce a computerized network based Management Information System (MIS) for the management of resources, funds and fixed assets as recommended in the last NASTEC Review.

The work related to two major projects, the establishment of the Multipurpose Gamma Irradiator and the National NDT Center has been completed.

2. PROCEDURE ADOPTED FOR PERFORMANCE REVIEW

The Science & Development Act No. 11 of 1994 mandates the National Science and Technology Commission (NASTEC) to review the progress of S&T institutions in relation to objectives set out in Section 2 of the Act. The NASTEC in consultation with the institution to be reviewed decides on a review team as well as a schedule for the review. The team is guided by the directions given in the guidelines prepared by NASTEC for the performance review of S&T Institutions [4].

The first review of the AEA was completed during the year 2011. The follow-up review is due in 2014. NASTEC in consultation with the AEA entrusted the follow-up review task to a team of 5 members selected based on their expertise. The self-assessment report of the AEA was made available to NASTEC in August 2014 [2].

The review panel comprised of experts of science and technology, organization development as well as environment assessment. The methodology designed for the evaluation includes both review of documents and primary information obtained from staff of respective divisions. Primary information was obtained in the form of presentation by each division and followed up detailed discussion with all members of the units.

NASTEC met the review team in August 2014 and identified lines of inquiry as well as further information and documentation necessary for the review. The team also identified individuals as well as groups to meet during the site visits and agreed with the Director General of AEA on dates and a time table for the review (see Annex A).

The site visits were carried out during the course of 5 days from September to November. The initial meeting of the review team with the Director General and the senior directors was held to brief them regarding the objectives and purpose of the review, describe the benefits to the institution and cultivate support for the evaluation. This was followed up by a detailed presentation by the Director General of AEA based on the submitted self assessment report.

The review panel held discussions with members of following categories of staff Directors, DDs, SSO, SO, and others across all divisions (see Annex B). The review team also made observational visits to some of the internal divisions and external centers such as Multipurpose Gamma Irradiator at Biyagama and National NDT Center at Kelaniya and held discussions with officials attached to the same

A separate meeting was held on 14 November 2014 with stakeholders of AEA representing both government and private sector. Series of meetings were held at NASTEC to discuss and analyze the findings, and also to arrive at appropriate conclusions

The findings are organized into two separate documents; they are management assessment which constitutes the main part of the report (Part I) and a supporting document in the form of a set of tables which provides management and output assessments (Part II).

3. MANAGEMENT ASSESSMENT

This section covers, the ability of AEA to produce useful and relevant outputs based on internal policies, strategies, management practices, which was evaluated based on the guideline provided by NASTEC.

3.1 Response to external and internal environment in planning

As an institution coming under the purview of the Ministry of Technology & Research, AEA has been constantly aligning itself to the National Policies. As a result it is commendable that AEA has been able to offer a number of services beneficial to the general public and industrial sector of Sri Lanka. The Gamma Center and NDT Center can be considered as two such divisions set up with taking into consideration market / industry needs of the hour and stand out as two self-sufficient divisions that bring in significant revenues. The potential of these two divisions to scale and grow is immense given the demands that exist in terms of market opportunities.

Having said this, other divisions too have the potential for expansion and growth thus yielding in more revenues and also taking them to the route of being self-sufficient. Whilst at present these divisions cater to requests made by industry or try something on their own, some lack a proper market potential assessment being necessitated which would provide them greater success on their commercialization efforts.

In addition it was voiced at the AEA Stakeholder meeting, that there exists many opportunities for partnering, collaboration with the Private Sector institutions. It was also highlighted that two different composures and standards were maintained on AEA's services engagements with the private sector, contrary to cordial relations with the state and the University sectors, which needs redress.

The review panel is of the view that AEA should continue to be nationally focused assessing needs of the Industry at large by having constant dialog and feed forward mechanisms established with all of its stakeholders. Also should stay up-to-date with IAEA and rest of the World thus gaining insights into the services offered by others which enable AEA to enhance and enrich its services in support of its growth. In short, medium and long term interventions derived off the Corporate Plan and Action Plan should be socialized across all staff at AEA so that all are aware of the master plan and stand committed to support in each of their roles. Although a Corporate Plan has been meticulously formulated with the aid of an external consulting agency, there is a lack of alignment across most levels as a result which was observed during our discussions.

3.2 Planning S&T / R&D programs and setting priorities

Overall, the review team is of the view that planning of S&T projects / R&D programs and setting priorities at AEA are at a satisfactory level and minor changes to the current practices are required for further improvement from the present status. It is noteworthy to state that the major R&D projects are screened and guided by the IAEA and thus the programs must be aligned with the IAEA policies to obtain training and technical expertise.

The discussions held with different divisions of the AEA indicated that the initial preparation of the annual action plan and corporate plan of the AEA begins with the divisional directors. The Directors in charges of divisions, consult their scientific and technical staff to prepare the divisional programs. The overall plan is prepared by consolidating all programs submitted by the divisions. The DG and the directors review the plan and suggest necessary revisions and

improvements to the plan. The revised plan is submitted to the Board for approval. The final plan is submitted to the Ministry and other relevant institutions to secure funding.

When developing new R&D project proposals, AEA uses national relevance as the key criteria; especially whether the project outcomes contribute to the sustainable development priorities of the country. The self-assessment report states that AEA also looks into requirements such as availability of resources, involvement of other stakeholders, use of nuclear technology, radiation protection aspects, and the possibility of incorporating foreign collaborators and other partnerships. When developing proposals, each division identifies projects and the divisional directors develop project proposals in consultation with the scientific and technical staff of the divisions and other stakeholders in line with budgetary requirements. These proposals are submitted to the Research and Project Evaluation Committee appointed by the Board for evaluation. This committee which consists of all Directors of the AEA evaluates the proposals and submits recommendations to the Chairman/DG and then to the Board for approval for implementation.

In the case of IAEA national TC projects, AEA calls for potential project proposals from national agencies where the use of nuclear technology is an essential element to achieve the project objectives. The key factor in the consideration of project proposals is the impact of these projects to the national development priorities and the AEA mandate which is aligned with the policy of the IAEA. The project proposals submitted by the AEA for evaluation are reviewed by IAEA experts for technical feasibility and safety related issues. The recommendations and improvements to the submitted proposals are communicated and after necessary revisions, the project proposals are resubmitted to the IAEA for reconsideration. The board is informed once the projects are approval by IAEA.

In the case of IAEA regional TC projects, the national development objectives are taken into consideration along with the regional development priorities. The project concepts are developed by RCA and relevant member countries are invited to participate in the project. AEA obtains the Board's approval to participate and then appoints a National Project Coordinator (NPC) for each such project. The NPCs develop the national project proposals in consultation with the divisional staff and other relevant external stakeholders. The project proposals are submitted to the Research and Project Evaluation committee for evaluation. The proposals are further improved with the consultation of the IAEA before implementation.

Although AEA follows a reasonable procedure when preparing the annual action plan and corporate plan, there was no evidence to suggest that outcomes from previous programs are reviewed and strengths and weaknesses are evaluated before planning new programs. It appears that divisional staff are aware about their plans but not aware about the overall plan of the institute. It is important for the staff to understand where they fit in and what their contribution going to be for overall plan of the institute. Thus, it is recommended to move beyond the director level and present the overall plan to the scientific staff of the institute, and to obtain their views/concerns before submitting plans to the Board for approval. The plan could incorporate an agreed set of performance indicators under each program which could be used for monitoring progress at latter stages.

It is commendable that AEA facilitate experts from other relevant institutions to use IAEA resources through national TC projects. However, once the projects are approved, the AEA appears to be left out from the loop due to direct communication between the IAEA and the relevant national institutions. A mechanism is required to keep the AEA in the loop until the project is successfully completed. Especially, rather than leaving the review of the national TC projects only to IAEA, an annual review workshop could be conducted by the AEA with the participation of relevant institutions and stakeholders. This will allow dissemination and sharing of knowledge between participants working in different areas/sectors.

Since the regional TC projects are developed by considering regional development as a priority, the primary review should be carried out by the IAEA. However, knowledge could be disseminated by AEA conducting a review workshop at the end of the project cycle with the participation of the relevant institutes.

3.3 Project management and maintenance of quality

The projects are managed by the project teams formed by selected scientific and technical staff of the divisions proposing the project, and relevant stakeholders from external institutions. Depending on the requirements, relevant staff from other divisions may also be recruited to project teams. If the projects are implemented in collaboration with external institutions, the institutions are requested to nominate members. If international collaborations are required, it is established through IAEA.

The site visits and discussions held with divisions revealed that the management and maintenance of the quality of programs is heavily dependent on the leadership provided by the individual directors heading the divisions or the coordinators handling the programs. The scientific staff is passionate about the work they carry out. The AEA has appointed as per the recommendation of previous review, a "Research and Project Evaluation Committee" under the newly established unit of Training & Evaluation to review new projects and to monitor the progress of ongoing projects and programs. However, the discussion revealed that there is no effective procedures in place to obtain support from the senior staff to help manage projects, and to assure the quality of the outputs in order to achieve required outcomes. This situation may have arisen due to lack of focus in the currently adopted review procedures. Review could be improved by obtaining service from experts outside AEA.

In case of national and regional TC projects, once approved, progress review is entirely carried out by IAEA. There is no mechanism at AEA to provide a feedback to the progress reports prepared by the chief counterpart or the NPC coordinator before submission to the IAEA to ensure quality.

With regard to other projects, although quarterly progress reports are collected and review meetings coordinated by the Research and Project Evaluation committee are held. However, there is no evidence to suggest that these meetings are effective because discussions revealed that there are serious delays in some procurement, and these said problems could have been detected by the Research and Project Evaluation committee during evaluation meetings.

The self-assessment report submitted by the AEA indicates that in addition to R&D activities, the staff is engaged in providing services to other agencies. The income generated from services has increased steadily over the years. However, they have not been able to carry out research up to their potential during the last five years despite having international collaborations and links with external institutions. Absence of a research culture may negatively impact in enhancing the quality of work done by the AEA.

In spite of the above drawbacks, it is highly commendable that AEA has successfully managed to implement two large scale projects. The first project is the establishment of a Multipurpose Gamma Irradiation Facility at Biyagama which is running at full capacity at present. Upgrading the facility is required to operate at full potential. The second project which is the establishment of a National Center for Nondestructive Testing at Kelaniya has just been completed. It is ready for operation from early next year. The review team believes that both these projects which can be shown as flagship projects of AEA should continue to run as independent centers still under the AEA to obtain further support from the IAEA as well as for appropriate recognition.

3.4 Human Resource Management

In the area of Human Resources Management it is observed that the approved cadre of 188 is adequate for AEA's operations across 2014, given that there are 43 vacancies as of October 2014 on the regular cadre (excluding 4 contractual hires).

Vacancies as at 31st August 2014		
Category Code	Designation	Vacancies
HM 1-3	Director	*1
HM 1-1	Plan Operations Manager	1
AR2	Deputy Director	6
JM 1-2	Accounts & supplies Officer	1
MA 2-2	Technical Assistant	12
MA 1-2	Management Assistant	3
PL 1	Lab Attendant	7

* Currently placed in HM 1-1 Actg. SDD

It is observed here that the AR2, MA 2-2, MA 1-2 and PL1 recruitments need immediate addressing to ensure streamlined operations across AEA. Furthermore it has been transpired during discussion with divisions that of a higher level of staff turnover is observed in the Scientific Officer (SO) and Technical Assistants (MA 2-2) categories. Also observe the lack of promotional avenues in certain categories and lack of Middle Manager designations instituted across the Technical spheres. In addition wish to highlight that the PL1 Category Code assigned to Laboratory Attendants may have to be reviewed and realigned to PL2 to ensure appropriate classification given the role at hand being of a semi-skilled nature also taking into consideration the required recruitment criteria (NVQ level).

Whilst it has been observed that the Scheme of Recruitment (SOR) now in place was approved on January 13, 2011. It has been observed that the SOR in place does not cater to career progression paths in certain instances which result in frustration, low staff morale and an overall diminishing of the productivity as a result.

Further the review panel has been informed of steps being taken to submit a new SOR for approval following in on the Department of Management Services (DMS) directive of 2013 and being with the Ministry of Technology & Research as at present. However the review team has not been provided a copy of same to verify the incorporations made therein to rectify the fore mentioned anomalies observed as highlighted on the previous paragraph.

It is also noted that there does not exist a Human Resources Management System (HRIS) nor an integrated Database to maintain employee specific personal information, career progression details, skill acquisitions etc. but maintain manual personal files which may not be dynamic in nature and also provide for the ease of access nor a skills inventory.

Recruitments for the required year is not adequately planned given the lack of forward planning across most sections which result in just-in-time hiring based on requirements that come by.

Training Needs Identification (TNI), Training Needs Analysis (TNA) and intervention alignment in terms of a Training Plan is not necessitated as part of the Human Resources Development Strategy of AEA stemming from the Performance Appraisal System (PAR). The appraisal system adopted is limited to the recommendation of the annual increment thus is not done in a diligent manner to address the skills & capability gaps of the Human Resources.

Although a Training Evaluation and Recommendation Committee is in place, it function in a limited purview not with a holistic view of the needs of the AEA. Also cases of bias resulting in the curtailments of required training, improper training nominations being sanctioned (especially foreign) and non-appropriate training being negotiated on instrument procurements (end user training contrary to operator training) has resulted in inadequate provisioning from a HRD perspective, which needs re-examination.

Due to limited opportunities offered for personal developmental endeavors (research degrees) resulted in a dearth of such candidatures within. This too does result in a lack of motivation of the staff to develop themselves on their own accord. Thus it is recommended that AEA fosters linkages with Universities on Sandwich programs to help overcome this situation which will help from a HRD perspective.

It has been brought to our attention that certain assignments post of recruitment on the Technical Spheres differed from the job description or prescribed role of engagement which resulted in the lack of optimization or leverage of such skilled resources also resulting in an underutilization of the prescribed capabilities and skills on hand. This has resulted in the frustration on the part of the recruits too and unless otherwise addressed would result in staff churn.

Actions resulting from the restructuring in 2005, lieu leave mechanism of implementation, ETF arrears, salary revision anomalies of the past etc. have resulted in a dejected work force, which is detrimental to the wellbeing of AEA and its' move forward plans in support of fuelling growth and prosperity leveraging in on the Human Capital therein.

It is recommended that a grievance committee be instituted with representation from the Ministry of Technology & Research Administration, Management Services and Pay Commission, outcomes being reported to the board of management on an ongoing to assess and quell concerns of the work force on a regular basis thus aiding in recourse action being warranted (as relevant), to assure AEA of a more satisfied and engaged talent pool.

In addition ongoing dialog between the management, unions and staff would help gain greater traction in support of organizational wellbeing in support of achieving the super-ordinate goals of AEA.

3.5 Management of organizational assets

AEA has considerable amount of assets and it is noteworthy that the staff have been managing with inadequate maintenance staff. According to the Scientific Staff (SS), AEA has been reasonably equipped and most of the required work can be done with existing equipment.

The assets have been properly utilized and maintained by the Scientific Staff (SS). It is commendable that the SS have been managing the maintenance of assets in the absence of proper maintenances staff such as Engineers or engineering assistants.

Poor salary scale was the reason given for not recruiting an Engineer, but the organization should pay attention to recruit at least an Engineering Assistant or Assistant Engineer (Gamma Center has already hired NDT qualified person). AEA also should look at the options of hiring personal on contractual terms at higher salary scale. It appears AEA has not explored the options that available to solve the problem

Rigid procurement procedures need to be relaxed for small value items such as filter paper, or test consumables, specially, the units dealing with private sector customers where test analysis results to be given within a short notice. At present, it was indicated that the procedures have

hindered the efficient function of these units due to delays in procurement. Steps should be taken to study to develop a mechanism to meet such needs by various divisions.

It was also noted that from the discussions that the S&T staff are faced with difficulties to carry out their task due to non-availability of various inexpensive test / process consumables and there were instances that they had buy out of their person money, hence it is important that a solutions for problems of this nature brought out in the immediate future.

There is no attempt so far to have the property rights for most of the research and development carried by AEA. It is important to establish process and procedure for the same. Since, most of the development work carried out has not come to commercialization stage, patterning activities cannot be carried out, but the organization should make preparation by educating the S&T staff on the same.

The ability to identify the market opportunities and develop products is weak. The following reasons could be the cause for such situations;

1. Non availability of proper Business Development team
2. There is no structured dialogue with business sector with regarding identifying both existing and future needs of industries.
3. Industries are not cable of understanding the value addition that the Nuclear Energy could bring in the business, hence, there should be concentrated development activities in the form seminars, workshops, campaigns etc. At present, there are no such activities by dedicated teams.
4. There is no budgetary allocation for concentrated business development activities.
5. AEA also provides certain services free of cost to parallel government organizations, and there is proper cost estimation for the work done. There should be costing for such services and it should adopt activity based costing so that not only the consumables for such service will be accounted but also the professional time and equipment depreciation cost.
6. The extracts of Corporate Plan given in the Self Evaluation Report did not indicate any market opportunities identified and the SWOT analysis also did not show any of the identified new business opportunities or opportunities to expand existing services to current customers

The scope for Nuclear Energy is vast and systematic business approach will yield good results provided it well specified in the Corporate Plan.

3.6 Coordinating and integrating the internal functions/units/activities

Most of the work done by each divisions are unique in nature, and therefore, the divisions are supposed function independently. However, there are instances that the divisions can function with coordinating with other units. It is commendable to note with limitations, the divisions are trying their best to coordinate their work and functions.

Based on the discussions carried out with all unit heads and other staff, it was revealed that there is moderate level of coordination among internal functions. However, integration between units to share equipment such as printing or vehicles etc are at minimum level. The following seems to be cause for such situation

1. Each unit consider their work to be unique in nature and expects to be treated such manner
2. Organization has not planned to procure large scale printing equipment to share between divisions

Unit that is handling Isotope Hydrology functioning without a head. At present SSO is responsible and carrying out the regular functions. One of the key issues faced by this unit is that the staff feels their requirements are not properly brought to the notice of senior management and the board. It would be effective for the unit, if there are an acting head who could liaise between board and unit

The functions within units are well defined by respective heads and work has been share by the available staff. It is commendable, as the claims made by member of all units, with staff turnover and shortage of staff, work has been carried without any unreasonable delays.

One of the grievances of the divisional heads was that there is no proper feedback system in place to know the reasons, when their project or research proposals rejected by the board. In the absence of a proper feedback system, there are plenty of rooms for various allegations misinterpretations. Therefore, a transparent evaluation system along with feedback process should be in place.

An operation manual should be developed as there issues and misunderstanding about HR activities, departmental rules and regulations, procurements etc. At present, there is notable level of dissatisfaction across divisions with regard to poor clarity in the procedures and transparency. In the absence of operation manual, there could be unwanted problems and blame games.

The role played by the Central Planning Unit is not visible and it is important that the transparency of the following units established among all staff.

- Research & Project Evaluation Committee
- Local Training Evaluation Committee
- Need Assessment Evaluation Committee
- Post Graduate requests Evaluation Committee

There is no job design and description for any of the post, and HR should pay attention to develop the same along with new organization chart so that all staff will be aware of the functions of every unit and individuals.

At present, only finance audit is being carried out, and the following auditing is not in place. They are; (1) Procedural Audit (2) System Audit and (3) Performance Audit

The above mentioned audits also should be carried out and well-designed mechanism should be in place. The Balance Score Card to be implemented a performance audit system should be in place for independent verification and to assign justifiable points.

3.7 Managing information dissemination and partnership

The, take measures to protect users of possible exposure from ionizing radiation and other hazards to life and property, and report and permit the inspection of work performed in relation to nuclear technology. Therefore, the AEA must disseminate information and establish partnerships with other potential users in Science and Technology institutes. The AEA provides wide range of services such as licensing services, inspections, transport licenses, training, accreditation and certification. The information on these services are disseminated through website, publications of the AEA, public lectures and exhibitions, direct contacts etc. Several training and awareness programs are also conducted every year by the AEA to partner organizations and stakeholders to disseminate knowledge. The AEA also take part in national exhibitions where general public is made aware on the services provided by them. The AEA also

raises awareness on the benefits of Nuclear Technology through the Youth Nuclear Society of Sri Lanka (YNSS).

The AEA has established partnerships with IAEA, RCARO and MEXT Programs for training, knowledge sharing and dissemination, R&D activities. The AEA coordinates bilateral discussions with Russia, Pakistan and India to obtain technical assistance in order to develop nuclear technology in Sri Lanka.

The AEA has the potential to increase capability in R&D activities. Unfortunately, the AEA does not have a unit or an entity to commercialize the products and techniques, transfer technology and to obtain patents for the technologies developed. There is no unit to advertise the services provided by the AEA. The newly established NDT center needs a marketing unit as they intend to offer many services to their stakeholders. The AEA has introduced new technologies to provide services to tea industry by detecting adulteration of tea. A unit is needed to advertise these services and generate income.

The dissemination of findings from the projects carried out by the AEA is limited. The AEA should encourage the S&T staff to communicate and disseminate their findings through research journals, conferences, newsletters, website as well as through print and electronic media. The AEA could introduce a mechanism to recognize/reward staff engaged in publishing their findings through journals of conferences. The AEA needs to provide access to scientific material such as research papers, technical reports and manuals through the partnership it has established. It is noted that although the AEA has a library and nuclear information service, the researchers have limited access to journal articles.

The publicity given to the services offered by the AEA is not adequate. By establishing a public relations unit, the AEA activities could be enhanced. By learning stakeholders requirements additional resources could be obtained and extend the application of nuclear technology to other sectors. The AEA website could be utilized effectively in publicity, marketing and information dissemination.

3.8 Monitoring, evaluation and reporting

The monitoring, evaluation and reporting of projects carried out at AEA need a transparent procedure. While the local projects are evaluated by an internal committee (Research Project Evaluation Committee) other projects such as projects funded by the IAEA do not have such a prescribed local procedure. Technically qualified and experienced S&T staff should be appointed to the internal committee to obtain feedback before submission of progress reports to IAEA. By regular monitoring and evaluation the performance of the S&T staff could be further improved.

The selection of S&T staff to be sent for training in overseas is carried out by the Overseas Training Evaluation Committee appointed by the AEA where prescribed selection guidelines are used. In order to strengthen the process and to make the process more transparent, the AEA could make S&T staff members aware on the criterion used in the evaluation of the applications. The committee maintains an updated database containing information on areas of applications relevant to personnel trained to facilitate invitation of nominations and preparation of project concepts for IAEA programs.

The AEA conducts once a month an "activity day" which is a very good measure taken to disseminate findings among the AEA staff. The activity day could be utilized to present the progress of AEA projects for monitoring and evaluation purpose. A prescribed format could be developed to present the progress which can be used later for reporting.

It is important to monitor the impacts on trainings provided to non-AEA experts to evaluate the contributions they made to the application of nuclear technology in the country. At present there are no such procedures.

4. OUTPUT ASSESMENT

When assessing the output of this institution, the expected role and capacity of the available staff were considered. Although there are a number of areas to assess productivity, the most relevant areas for the AEA are assessed and summarized in this section.

4.1 Technologies Developed

Although AEA is a scientific institution with modern laboratory facilities and trained scientific personnel engaged in number of R&D projects with IAEA support, during the period under review only one new product had been developed. This is below the expectation. Therefore, it is recommended that AEA should focus on collaborative multidisciplinary research projects targeting technology development.

4.2 Technologies transferred to industry /entrepreneurs

The overall goal of R&D work is to transfer the developed technology to an industry or entrepreneurs for the benefit of economic growth in the country. During the period under review, technology transfer had not been the focus (excluding RCA projects). It is noted that the same S&T staff are engaged in providing services to industrial requirements as well as R&D activities. The panel of reviewers believes that this been the major reason for slow progress in this area.

4.3 Information Dissemination/Extension

The dissemination of information is very important to educate the general public and attract new customers for potential projects. Reviewers believe that the AEA performance is at a satisfactory level in this area.

During the period under review three guidance manuals to educate the technical personnel in different disciplines and several advisory leaflets for general public were prepared by the AEA. In addition, several seminars, workshops and training programs were conducted by AEA to educate technical personnel in government sector, statutory boards and private sector organizations. Most of the programs are one day training programs.

The AEA also has hosted several conferences in collaboration with IAEA in different disciplines for technical personnel in government sector/statutory board and private sector organizations. In addition, AEA has participated in several exhibitions (Deyata Kirula, Vidulka, Inco, Medical Exhibitions and School Exhibitions), several electronic medias to educate the general public on nuclear technology and published articles interested to general public in news papers.

4.4 Publications

Research and development are an integral and important part of the professional activities of the AEA. The AEA is expected to publish research papers in diverse areas regarding the application of nuclear technology. However, it was observed that 3 papers published in referred journals during the period under review are only in one specific area (nuclear techniques were not used). The panel of reviewers believes that this is below the expectations given that there are 58 S&T personal. A total 3 journal publications, 5 international conference publications and 4 SLAAS abstracts published during the period under review.

4.5 Patents

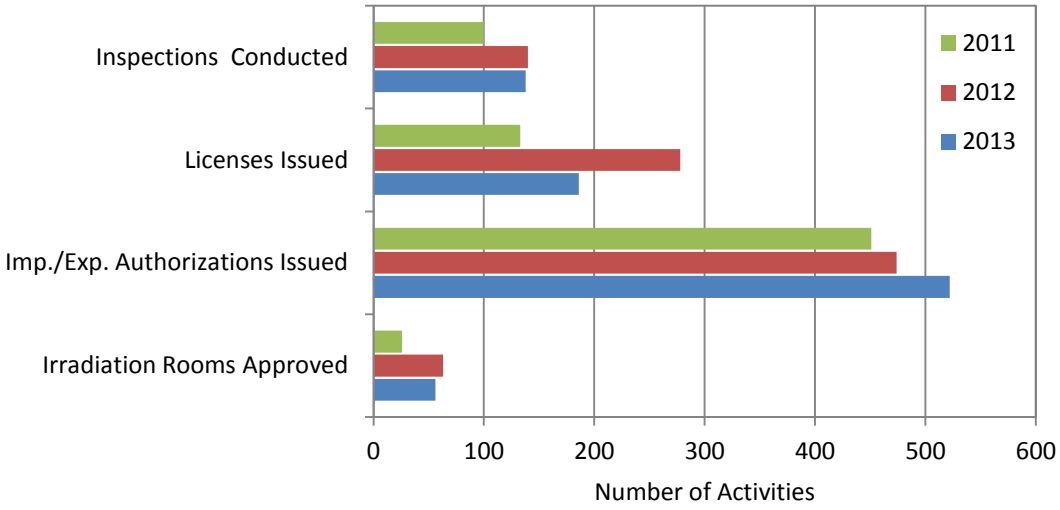
Despite being a scientific organization involved in providing nuclear technology to the nation in cost effective manner, the panel of the view that the effort made by AEA to patent its findings are not adequate. The reasons for such situation could be due to lack of awareness of the patenting and commercialization process and absence of research culture in the organization at large.

4.6 Services (Testing, Calibrations, Consultations, Advisory etc)

The service functions of AEA are carried out by number of technical divisions. The Radiation Protection and Regulatory Division is responsible for implementation of a regulatory program conforming to international standards on radiation safety. The Industrial Application Division, General Scientific Division and Life Sciences Division are responsible to carry out research and development activities related to nuclear science and technology.

4.6.1 Regulatory Activities

The Radiation Protection and Regulatory Division successfully completed several regulatory programs during the period under review (see figure below). The progress made by the division is in satisfactory level. The import/export authorizations issued by the division now exceed 500. The AEA has approved a large number of facilities and authorizations for government and private sector organizations.



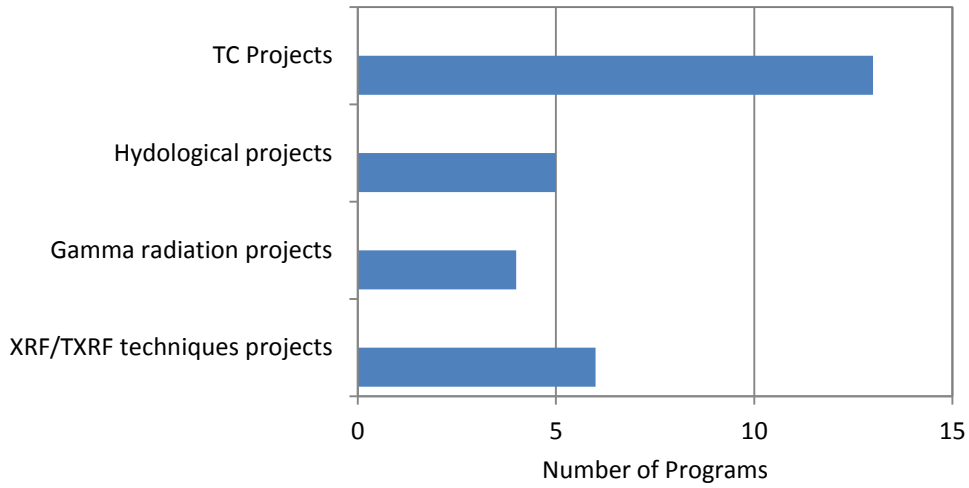
4.6.2 Instrument Calibrations, Repair, Maintenance and Monitoring Services

The instrument calibrations, repair, maintenance and monitoring services are performed by General Scientific Division. They have engaged in the implementation of SSDL Calibration, personnel dosimetry services and nuclear instrumentation program. During the period under review the division has carried out a large number of personnel monitoring services. The reviewers feel that the efforts made by the AEA in this regard is quite satisfactory with inadequate staff strength.

Activity	2011	2012	2013
Repair and maintenance	48	15	18
Software maintenance	112	112	169
Calibration services	59	65	70
Personnel monitoring services	933	900	1100

4.6.3 Research and Development Activities

The review panel believe that the number of research and development activities carried out by AEA is satisfactory. During the period under review the AEA has focused on national TC projects, hydrological issues, Gamma radiation work and XRF/TXTF techniques in collaboration with other government sector/statuary organizations.



4.6.4 NDT Manpower Development Program

The Industrial Applications Division annually conducts training programs on NDT for technical personnel in private and public sector organizations with the objective of developing the skills to establish new NDT laboratories or upgrading existing facilities in their respective organizations. All training courses are conducted according to a syllabus approved by the IAEA and the International Standards Organization (ISO). The AEA has generated a substantial income by conducting these training courses.

Year	No. of Participants	Income (Mn)
2011	249	2.45
2012	210	3.61
2013	211	3.07

4.6.5 Provision of NDT Services

The main purpose of AEA providing NDT inspection services to industry to detect defects in machinery and metallic components to ensure industrial safety and to improve industrial productivity. The reviewers feel that the effort made by the AEA in this area is highly commendable. The panel of reviewers believes that the necessary expertise and facilities are available in this division to make it self-sufficient. The summary of services carried out during the period under review is given below.

Year	No. of Inspections	Income (Mn)
2011	114	4.13
2012	130	8.51
2013	143	4.80

4.6.6 Analytical services by Gamma Spectroscopy

The Life Sciences division provides its services to the import & export sector, industrial sector, research and academic institutes through the utilization of nuclear and associated analytical methodologies. The main activity is testing of imported milk products and certain export products for radioactivity contamination, bringing a substantial income to AEA. The income generated by this division in 2013 is almost 70% of the total income generated by AEA. The

panel of reviewers feels that the effects made by the AEA in this area are in commendable with the existing staff in the division. The summary of services carried out during the period under review is as follows:

Year	No. of Samples	Income (Mn)
2011	7650	31
2012	> 7000	32
2013	> 7000	35

4.6.7 Establishment of Quality Management System (QMS) as per ISO 17025

The AEA has managed to establish a Low Level Counting Laboratory, SSDL Calibration Laboratory, XRF Laboratory and Certification Body for Non Destructive Testing personnel accredited by Sri Lanka Accreditation Board. The panel of reviewers feels that the efforts made by the AEA in this area are in a satisfactory level. The QMS can be extended to other laboratories in the AEA.

4.6.9 Science Popularization Activities

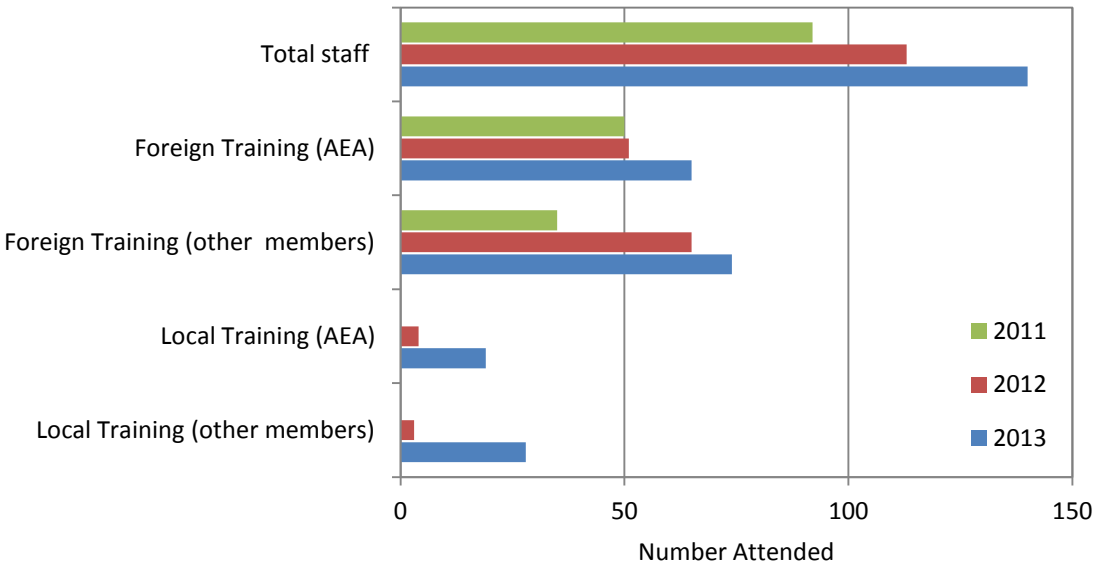
The AEA has successfully conducted several workshops/awareness programs, seminars and training programs for general public, A/L students and technical personnel in different disciplines

4.6.10 Development of Databases

A software program had been successfully developed by AEA to collect baseline data on environmental radiation monitoring program during the period 2011 -2013

4.7 Training

It was noted that all local and foreign seminars / training programs / workshops and meetings attended by AEA officials and other institution members are short duration programs. In depth knowledge cannot be achieved from this type of training programs. The review panel strongly feels that the AEA should take steps to provide opportunities for S&T staff to follow long term training programs.



5. RECOMMENDATIONS

The NASTEC review undertaken in 2011 has given their recommendations under 7 areas. The AEA has accepted the findings of the earlier review and taken a number of positive initiatives to implement the recommendations. In order to maintain compatibility, the recommendations of this review are also organized according to the same categorization. Wherever applicable, actions taken by the AEA in relation to the earlier recommendations is also evaluated.

6.1 Planning and Monitoring

Since the Board is responsible for the planning and monitoring of AEA activities, the earlier review has highlighted the importance of setting up a formal structure for the preparation of a planning calendar as well as for reporting progress to the Board. Following recommendations, the AEA has appointed a Research and Project Evaluation Committee under the newly established unit of Training & Evaluation to review projects and to monitor the progress of ongoing projects/programs.

- During the discussions, it was revealed that the divisional staff is aware only of their plans and not the overall plan of the institute. It is important for the staff in an S&T institution to know the overall plan of the institute and their role in it. Therefore it is recommended that the Research Project and Evaluation Committee presents the overall plan of the institute to the S&T staff, and obtains their views/concerns before submitting the plans to the Board for approval.

- The review team also noted that dissemination of the outcomes from national TC projects is not at a satisfactory level. It is recommended that AEA organizes an annual review workshop/seminar with the participation of relevant institutions and stakeholders to disseminate and share knowledge between participants working in different areas/sectors.

6.2 Internal Restructuring

As recommended by the earlier review, the AEA has obtained cabinet approval to separate AEA into two independent entities, namely the Sri Lanka Atomic Energy Board and the Sri Lanka Atomic Energy Regulatory Council. For smooth transition, the following actions are proposed for consideration.

- In accordance with this change, the AEA has prepared a new Organizational Structure (OS) and Scheme of Recruitment (SOR) and submitted them to the Ministry of Technology and Research for review. However, the discussions indicated that the staff is not very clear about the proposed OS. Thus, the review team recommends the staff should be educated about the new OS and reporting structures.

- At present, the respective S&T officers of the divisions are entrusted with the maintenance of their equipment. So far, the AEA has not faced major issues regarding the instruments. But this arrangement could affect the performance of scientific staff as they may be wasting time on repairs and maintenance. Although the need to recruit an Engineer was highlighted in the earlier review, no one has been hired as yet. We recommend that special attention be given to this issue and that at least an assistant Engineer be hired to manage assets in the AEA.

- The development of a Human Resources Management System (HRMS) to maintain employee specific personal information, career progression, performance appraisal, skill acquisitions

etc., is recommended. This should be complemented with the development of a Human Resources Development Plan (HRDP) by considering training needs, intervention alignments, learning outcome assessment, evaluations etc.

6.3 Improvements to Internal Management

- The Content Management System (CMS) to provide easy access to internal circulars, management procedures and Board decisions proposed by the earlier review has not materialized. Some of the Human Resources related grievances are due to the lack of clarity on government circulars and their interpretations. We recommend and reiterate the importance of implementing the CMS.

- The AEA reported that the proposed Management Information System (MIS) to manage resources, funds and fixed assets has been purchased. The system has not been implemented as yet. We recommend the implementation of the MIS without further delay.

- In order to improve the performance of the S&T personnel, a Performance Based Incentive Scheme (PBIS) was proposed in the previous review. The review team acknowledges that due to many staff categories with different roles, implementing a PBIS is complex. However, AEA should make effort to study the pertaining problems and come out with an appropriate mechanism. In addition, AEA could draft guidelines aligned with government circulars in operation to allow staff members to benefit by applying for the Research Allowance.

- During discussions, it was revealed that there is no progression in the career path, hence, it limits the scope of younger staff to remain with the organization. Most of the promotions are linked with administrative responsibilities and seniority, which should be restructured in the new SOR.

- It is recommended that a grievance committee be instituted with representation from the Ministry of Technology & Research Administration and Department of Management Services & Pay Commission, with the outcomes being reported to the Board on a regular basis.

6.4 Strengthening the Capacity for Independent Research

The review team noted that while the R&D activities and services given by AEA is satisfactory, compared to S&T staff strength, the research output is weak. One reason is not having designated divisions that perform services while other divisions perform R&D activities. Another reason is not having a strong research culture within AEA.

- With the proposed restructuring, we recommend AEA to identify divisions/units that should primarily focus on providing services. Other divisions/units should focus on conducting collaborative multidisciplinary R&D activities by obtaining funds from National/RCA TC projects or through local funding agencies focusing on development of transferable technology to the industry or stakeholders.

- In order to build the staff research capacity, the AEA has recently setup a new committee called the PG Request Evaluation Committee. The review team noted that this committee has not taken any initiatives yet. The review team strongly recommends that the committee draft guidelines to introduce a postgraduate scheme for S&T staff; that is, a mechanism to initiate research activities leading to M.Phil/Ph.D. degrees in collaboration with local/foreign Universities. It is possible to convert or expand some of the research conducted in-house into M.Phil or Ph.D. research projects.

6.5 Improving the Specialized Technical Services

The AEA has managed to complete two large projects, the Multipurpose Gamma Irradiator and the National NDT Center. Both these projects could be considered as flagship projects of the AEA.

- Since both these centers are located external to the AEA premises, it is strongly recommended that selected decision making powers be delegated to the Director level at these centers for smooth uninterrupted operation. In addition, facilities such as transport become essential. The staff for these centers should be recruited only depending on the demand for their services and availability resources.
- As correctly identified in the SWOT analysis, the AEA income is heavily dependent on a single source, namely the testing of important milk power for radioactive contamination Cs-137. While acknowledging that S&T staff is already engaged in expanding into areas such as isotope hydrology, the review team recommends that AEA services be diversified by moving into new R&D activities. The link with Universities for potential PG programs will help in this aspect.

- The AEA has managed to establish a Quality Management System (QMS) in Low Level Counting Laboratory, SSDL Calibration Laboratory, XRF Laboratory and Certification Body for NDT personnel accredited by the Sri Lanka Accreditation Board. We recommend that the QMS be extended to other services of AEA.

6.6 Measures to Maximize Benefits from IAEA Technical Assistance

The AEA is in a unique position to obtain IAEA technical assistance to benefit the country. As pointed out in the earlier review, the activities could be expanded to obtain maximum benefit to the country.

- Although this is one of the most important functions of the AEA, the review team believes that the existing staff strength and the available facilities of the International Corporation division are far from satisfactory. It is strongly recommended that AEA looks into staffing the division and providing them with the necessary facilities.

- Due to a decision taken by IAEA to proving training only to members of project teams, one of the issues identified in the earlier review has been resolved. However, AEA could identify new and potential areas to work with national institutes annually to benefit from IAEA training. There are experts in Nuclear Technology outside the AEA, especially in the local Universities. Thus, it is recommended that these resources are tapped when preparing TC projects and explore avenue for new collaborations

As identified in the earlier review, a database of expertise in the Universities and personnel trained through IAEA TC programs should be prepared and made available through the AEA web site.

6.7 Publicity and Dissemination of Information

Publicity and dissemination of information carried out by AEA is at a satisfactory level. However, the following recommendations identified through the earlier review have not materialized.

- The conversion of the traditional library to a National Nuclear Information Center.

- Upgrading AEA web site by providing information that is useful to the general public and access to AEA publications.

- Establishment of a Public Relations Unit and marketing unit. The meeting with the stakeholders indicated that they would prefer if AEA could meet them at least once a year to discuss the services provided to them, but it would be good if all units have regular feedback mechanism from their customer to improve the service as well as develop new service areas. It also should be noted that level of knowledge and education to use various aspects of nuclear energy is very poor among the industries and therefore, AEA may have to expand the services by educating the customers The proposed unit could be entrusted to handle other public events such as awareness seminars, exhibitions and media events.

As pointed out in the output assessment section of the report, the development of technology, technology transfer and obtaining patents which are expected from scientific institutions is below the expectations. The reviewers believe that with time and through the proposed changes, AEA will reach the expected goals.

7. Management and S&T Output Assessment

1. Assessment of Institutional Response to the External and Internal Environment

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	X			Mandated via the Ministry to ensure greater national benefits & impact and complied with.
The organizational mandate (as specified by the relevant Act) is considered in strategic planning		X		AEA has played a pivotal role in balancing National needs with International directions. In addition, steps have been taken to make amendments to the existing Act to ensure greater alignment.
The institution is responsive to changes in Government policies and strategies	X			
Factors such as strengths, weaknesses, threats and opportunities are considered in strategic planning	X			A far sighted Corporate Plan spanning 2014-18 has been formulated with an External Consulting Agency.
Stakeholders' needs are taken into consideration in strategic planning	X			Self Assessment Report indicates same.
The Board of Governors is involved in strategic planning	X			The Board of Governors is involved in the approval.
The extent to which staff members are involved in strategic planning		X		Management levels have been involved in the corporate plan as mentioned, however other levels are not familiar with the plan.
Government allocations and alternative funding opportunities (donor funding) are considered in strategic planning		X		Donor funding obtained through TC projects.
The extent to which policies and plans of the organization are reviewed and updated	X			Monthly as mandated for line Ministry reporting.

2. Planning S & T programs and setting priorities

Management practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
National development goals are considered in planning programs & setting priorities	X			To obtain IAEA support, programs must be aligned with national policies.
Board of Governors participate in planning and priority setting of program	X			Annual action plan is approved by the Board.
The extent to which the staff of the institution participate in programme planning and priority setting		X		Development of programs starts at the divisional levels. However, they are not aware about the overall plan.
Stakeholder interests are considered in programme planning	X			Self Assessment Report indicates that divisions consider stakeholder interests.
The extent to which programmes are planned and approved through appropriate procedures	X			Either AEA or IAEA evaluates the programs.
The extent to which the availability of funds (government allocations and other funds) and generating funds are taken into consideration in planning programmes		X		Planned activities are based mainly on government funds and IAEA technical support.
The obtaining of necessary equipment is considered in planning programmes	X			Either AEA or IAEA evaluates the feasibility.
Stakeholders are represented in the institution's planning and review committees			X	No such mechanism.
The extent to which socio economic and commercialization of aspects are considered in programme planning		X		Most programs consider commercialization aspects. However, not many products are developed.
Effectiveness and efficiency of institutional procedures in approving new S&T programmes		X		No external evaluation for none TC projects.

3. Planning S& T / R& D Projects

Management practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The staff is provided with guidance for project planning		X		Guidance is available through IAEA for TC projects.
Previous research results/data are used for planning projects			X	No evidence to show previous outcomes are used.
The extent to which the institution follows a formal process for preparation, review and approval of projects	X			Research & Project Evaluation committee is in place.
The extent to which organizational plans (e.g. medium-term plan, corporate plan, strategy etc.) are used to guide project selection and planning		X		Selection of projects mostly based on government support and IAEA support.
Multidisciplinary projects/ activities are encouraged by the institutions	X			Most TC programs are multi-disciplinary.
Foreign collaborations are encouraged and incorporated in planning.	X			All RCA projects are regional projects.
Partnership with private sector is encouraged by the institution	X			Gamma irradiator is a good example.
The extent to which development research/activities are considered in planning projects	X			Most TC projects are development oriented projects.
The extent to which basic research are considered when planning projects			X	Most projects are either service or development oriented.
The degree to which adverse effects on environment are considered in planning projects	X			AEA functions as the national regulatory authority on radiation safety.

4. Project management and maintenance of quality

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.)		X		There is no evidence to show that well defined procedures are available.
Ensuring that instruments, equipment and infrastructure facilities are sufficient for implementation of projects	X			Either AEA or IAEA evaluates the feasibility of major projects.
The effectiveness of administrative procedures and support for project implementation (procurement and distribution of equipment and materials, transport arrangements, etc.)			X	There are procurement delays. Inadequate transport arrangement at external centres.
Formal monitoring and review processes are used to direct projects towards achievement of objectives		X		Monthly progress review is not effective.
The extent to which the researchers are supported by the required technical / field staff.	X			Technical support is available and no issues are reported.
Ensuring that established field / lab methods, and appropriate protocols are used	X			Emphasis is given to QA/QC of the laboratories.
Research projects/ S&T activities are completed within the planned time frame.		X		Most of the TC projects are completed on time.
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.		X		Training and technical support is given by IAEA. Inadequate links with Universities which could strengthen this further.
The extent to which quality assurance practices are followed by the institutions	X			AEA functions as the national regulatory authority on radiation safety.
Ensuring that researchers/ scientists have access to computers and necessary software	X			Facilities are available at a reasonable level.

5. Human Resource Management

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)			X	No Database or HRIS in place; personal files in place.
The institution, plans and updates its staff recruitments based on programme and project needs		X		Yes but not in a planned manner based on forward projections.
The effectiveness of the selection procedures and the schemes of recruitment		X		SOR does not address career progression paths in certain instances.
Training is based on institution and program objectives and on merit,			X	No training needs identification & analysis.
The effectiveness of the procedures in promoting a good working environment and maintaining high staff morale.			X	Staff morale low; stemming from actions from the past as elaborated in the report.
The effectiveness of staff performance appraisals			X	Not thorough and adequate since it is needed for recommending increment only.
The effectiveness of rewards and incentive schemes in motivating the staff			X	No schemes in place other than the limited ones resulting from services/inspections.
The effectiveness of managing staff turnover, absenteeism and work interruptions.		X		

6. Management of organizational assets

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	X			AEA activities are aligned with the country policy framework.
Infrastructure (buildings, stations, fields, roads) is satisfactorily maintained.	X			No issues reported.
Vehicles and equipment (lab, field, office) are properly managed and maintained.	X			Maintenance contracts are required to maintain sophisticated equipment.
The effectiveness of procedures to ensure that equipment are in working order		X		There are no centralized procedures and it transpired that the respective divisions put their own effort to ensure working order of tools and equipment.
The effectiveness of the institution's overall strategy in generation and proper utilization of funds			X	As per the financial statements the institution was not able to utilize all the available funds.
The extent to which the institution identifies opportunities for income generation and cost recovery			X	There are certain divisions which provide their services at a lower cost, and free of charge to certain government organizations. Proper accounting or costing mechanism is required.
The extent to which the intellectual property rights of the institute are protected			X	There are neither processes nor procedures in place to protect the inventions that were discussed during the visit.

7. Coordinating and integrating the internal functions/units/activities

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			X	The AEA is still not equipped to be on par with its potential and provide the services it could offer. The restructuring includes capacity building activities for future growth.
The effectiveness of internal communication and coordination mechanisms		X		There is need for further improvement in internal communication.
Institution's overall direction and coordination are provided by a central planning committee / unit.	X			It is important to have a transparent feedback process in place to evaluate project proposals.
The extent to which different units are assigned clearly defined functions	X			The divisions and functions of staff within divisions are clearly defined except for the team handling isotopes.
Responsibilities of research / management staff are clearly identified		X		Directors seem to be aware of the need and try their best at individual level. There seems to be lack of clarity with regard to the functions and responsibilities of the heads of divisions.
Effectiveness of using appropriate reporting procedures and feedback in management at different levels			X	The main cause for grievances and frustrations noted among all types of staff seems to be due to top down communication.

8. Partnership in managing information dissemination

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution systematically plans and performs dissemination of information			X	No plan or formal process for information dissemination.
The extent to which the institution plans and maintains linkages with key partners for sharing and dissemination of information		X		The AEA maintains good linkage with the main funding source IAEA. Information on national TC projects handled by AEA is disseminated but not for projects handled by other partner organizations.
The effectiveness of institutional procedures for technology transfer			X	There are no prescribed procedures on technology transfer.
The effectiveness of the system to obtain feedback from different types of stakeholders		X		There is no formal way of obtaining feedback from the stakeholders.

9. Monitoring, evaluation and reporting procedures

Management Practice	Level of Practice (Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution monitors and evaluates (M&E) its own activities periodically		X		Some activities on projects are evaluated but the activities of the divisions are not formally evaluated.
M&E is supported by an adequate management information system (MIS), which includes information on projects (e.g. costs, staff, progress, and Results).			X	There is no MIS in operation. Monthly meetings are held but not effective.
The extent to which S&T results and other outputs are adequately reported internally (e.g. through reports, internal program reviews, seminars).		X		S & T results are disseminated by some scientific publications, through annual reports and monthly progress review meetings.
External stakeholders contribute to the M & E process in the institution			X	External stakeholders are not contributing to the M & E processes.
The extent to which the results of M&E are used for project/ research planning and decision-making.			X	The outcomes of the M & E processes have to be incorporated into project / activity planning. There is no formal project or activity planning at the AEA.

10. S&T Output Assessment

Output Category	Level	General Comments on quality and relevance of outputs and productivity of institution
1. **Technologies Developed**	Weak	The AEA has developed only one new products during 2011-2013.
2. Technologies transferred to industry	Moderate	Other than agriculture and hydrology, no active R&D programs in place to transfer technology.
3. Information Dissemination / Extension ***Publications*** S & T institutional review reports, Training manuals, Advisory leaflets, Maps, Posters etc. ***Dissemination events*** Workshops and seminars, Conferences, Exhibitions, Media events, Open days, Demonstrations	 Strong Strong	 Three guidance manuals have been prepared and several workshops and seminars have been conducted. Participated in many exhibitions and media events.
4. Publications • Research papers in ISI journals • Conference proceedings • Books and monographs • Technical reports • Research reports	 Weak Moderate Moderate Weak Strong	 Three publications in ISI journals. Nine conference proceedings. Few Hand-outs & booklet One technical report. TC project reports.
5. Patents	Weak	No patents produced.
6. Services • Research grants awarded and administered • Calibration of instruments • Testing and analytical services • Science popularization activities • Development of databases	 Strong Strong Strong Moderate Moderate	The number of R&D activities carried out by the AEA is satisfactory. A considerable amount of work has been carried out in the areas of calibration and analytical services bringing a major income to AEA.
7. Training ***Staff training programmes*** ***Training programmes for stakeholders***	 Strong Strong	 Most training programs are short duration programs where no in depth knowledge could be imparted.

Total S&T staff strength of institution: 58

Comments on productivity of institution based on outputs and S & T staff strength:
The AEA is a scientific institute with modern laboratory facilities and well trained scientific staff. As a modern scientific institute it is expected to develop technologies and transfer technologies to the industry for the economic development of the country. The AEA performs below its full potential in both these areas. However, the information dissemination/extension services carried out by the AEA is at a satisfactory level. A considerable amount of work had been carried out by the AEA in providing services to government and private sector organizations. In comparison to the S&T staff strength, quality publications related to the use of nuclear technology is still weak.

ANNEXES

A. Site visit program

B. List of officers met during site visit

C. References

ANNEX A: Site visit program

1) 20th August
    - First meeting of the review Panel

2) 3rd September 2014
    - Meeting with DG and Senior Officers of AEA

3) Wednesday 17th September
    - Life Sciences Division
    - Radiation Processing Division
    - International Corporation Division

4) 16th October 2014
    - General Scientific Services Division
    - Radiation Protection and regulation Division
    - Non Destructive Testing Unit
    - Meeting with Union representatives

5) 23rd October 2014
    - visit to Multipurpose Gamma Irradiation Facility, Biyagama
    - visit to NDT Unit
    - Isotope Hydrology Section
    - Finance and Administration Division
    - Audit Unit
    - Meeting with senior officers

6) 14th November 2014
    - AEA Stakeholders meeting

ANNEX B: List of officers met during site visit

NASTEC Staff

- Dr. Muditha Liyanagedara, Director
- Ms. Asha Pitadeniya, Senior Scientist

AEA Staff

Mr. D.G. Wickremanayake	-	DG, Atomic Energy Authority
Mr. V. Waduge	-	Head, Life sciences Division
Mr. T.M.R. Tennakoon	-	Director, National Centre for NDT
Mrs. Samantha Kulathunga	-	Director, Sri Lanka Gamma Centre
Mr. C. Kasige	-	Head, General Scientific Services Division
Mr. H.L.A. Ranjith	-	Radiation Protection and regulation Division
Mr. E.A.N. Edirisinghe	-	Isotope Hydrology Unit
Mr. Ranjith Bandara	-	DD, International corporation division
Mrs. Anusha Chandramali	-	Internal Auditor
Mr. M.M.P. Wijesekera	-	Senior DD, Administration
Mrs. M.M. Rathnayake	-	DD, Finance
Mrs. R.H. Neethanganie	-	DD (HR division)

ANNEX C: References

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