NATIONAL SCIENCE AND TECHNOLOGY COMMISSION

PERFORMANCE REVIEW REPORT

2013-2015

PLANT GENETIC RESOURCES CENTRE

GANNORUWA

PERADENIYA

SRI LANKA

JANUARY 2017

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Table of Contents

EXECUTIVE SUMMARY

Sri Lanka is a country with considerable diversity in plant genetic resources. The management of plant germplasm in Sri Lanka falls under the purview of the Department of Agriculture, and the Plant Genetic Resources Centre (PGRC) is responsible for collection and conservations of plant genetic resources. The PGRC involves in exploration of germplasms, *Ex-situ* conservation of collected germplasm, characterization of them for improvement of plant genetic resources in collaboration with plant breeders attached to the Department of Agriculture Sri Lanka.

The PGRC is having a capacity to conserv 25,000 accessions and at present,over 14,000 accessions belonging to 20 crop species are conserved under cold storage. Germplasm accessions, mainly landraces or traditional cultivars, conserved in PGRC are rice germplasm obtained through collaborative research and development activities with the International Rice Research Institute at Phillipines. Vegetatively propagated collections are mostly conserved in the field. Most of the germplasms are conserved only at PGRC and therefore, as security, a part of the germplasm accessions held by the PGRC should be duplicated by establishing regional germplasm collection and conservation centres in different agro-ecological zones of Sri Lanka.

At present in Sri Lanka, there is a strong need to utilize PGR in the improvement of crop varieties which are resistance to biotic (pests, diseases) and abiotic (drought, salt tolerance) for sustainable national development. The PGRC has taken the initiative to promote the development and commercial production of several crop species (e.g. rice) in the country with the help of plant breeders attached to the Department of Agriculture, Sri Lanka and private sector organization including farmer organizations.

Private seed companies, Researchers from different institutes and University academic staff members also make extensive use of the conserved crop germplasm. Thus it is essential for PGRC develop a mechanism to maintain the identity of the distributed seeds and PGRC may be able to earn money which can be used for future conservation activities

In order to more efficiently maintain the conserved materials, germplasm characterization is very important activity of the PGRC. The capacity for characterization will be greatly improved through the acquisition of molecular biology facilities and expertise in the country. While

training in relevant fields has improved in recent years, the situation could be greatly improved through paying attention to the skill gaps. When selecting scientists for PGRC, qualifications and experience relevant to PGR should be considered as it is a highly specialized institute. There should be a proper mechanism to retain qualified and experienced scientists for a substantial period in the PGRC without affecting the continuity of research and development programs. In addition Development of facilities for basic research and staff training programs for areas such as Seed Physiology and Cryopreservation will be beneficial for understanding fundamental problems in germplasm conservation and development of techniques for germplasm conservation

Planning of PGRC activities are very important for smooth functioning of the institute. As the planning activities are carried out at higher level, the contribution and concerns of the PGRC scientists are not fully incorporated. This can be remedied by giving more autonomy to the head of PGRC by elevating the position to a Director level. Furthermore, participation of stakeholders in planning (farmer, corporate sector, scientists) should be considered.This may be achieved through establishing a Central Planning Unit for PGRC.

Access to latest information on Plant Genetic Resource is essential for the scientist working in the PGRC to improve the quality of the work and therefore, PGRC need to consider about having access to data bases in the relevant field of studies either through the Library of the Department of Agriculture, NSF or Universities. Proper coordination in different divisions (e.g. exploration, characterization and evaluation, data management) is essential in the PGRC for successful conservation of collected plant materials and to have information as required. Thus it is essential to establish MIS which is especially designed for the PGRC.

The PGRC is a very popular place among general public, school and university students and the institute plays a key role by providing many training programs as requested by them. In addition to these program PGRC would be able to organize training programs at regional/international level to share/gain knowledge as well as a supplementary source of income.

The PGRC was established almost 25 years ago with the help of JICA funds and almost all the equipments and facilities provided are still under good working condition. The PGRC should pay attention to maintain them in good order for proper functioning of these

equipment/machineries and therefore, it is essential to have trained technical staff within the PGRC.

1. INTRODUCTION

Plant Genetic Resources Center (PGRC) of the Department of Agriculture was established in 1989 through a grant from Japan International Cooperation(JICA).

The objective of establishing this important national institute was exploration, collection, conservation and promoting sustainable utilization of plant genetic resources of food crops in Sri Lanka for the benefit of the present and future generations.

The current vision of PGRC is "Achieving excellence in agriculture through conservation and sustainable utilization of PGR" and its mission is "Promoting agriculture research and development through exploration, conservation, management and sustainable utilization of PGR to ensure food security and increased agriculture production."

The PGRC consists of five Technical units as follows;

1. Exploration and collection
2. Seed Conservation
3. Multiplication, Characterization and Evaluation
4. Biotechnology and In-vitro Conservation
5. Data management

PGRC has a capacity to conserve 25,000 accessions of seeds. Currently, over 14,000 accessions of seeds belonging to about 20 different types of crops are conserved at PGRC (Table 1). These seeds are preserved and maintained at +1 ^{0}C (base collection) and at +5^{0}C (active collection).

Table 1. Groups of crops preserved at PGRC and the number of accessions.

Crop	No of Accessions
Rice & related spp.	4902
Other cereals	1779
Grain legumes	2172
Vegetable legumes	1582
Solanaceous spp.	1376
Cucurbit vegetables	838
Brassicaceae veg.	31
Allium	21
Other vegetables	459
Leafy vegetables	183
Root and tubers	09
Mustard related species	134
Oil crops	441
Fibre crops	67
Medicinal plants	29
Fruits	165
Total	14,187

In addition to the seed collection PGRC also maintains an *in vitro* collection of several crops such as *sweet potato, potato, banana* &several *Dioscorea* spp. which cannot be conserved by seeds and therefore, protocols are being developed for long term conservation of these crops.

Over 12 crops have been characterized (Table 2). Characterization catalogues are prepared for Rice, Mung bean, Brinjal, Tomato, Okra, Luffa, Wing bean, Yard long bean and Chilli (in preparation).

Table 2. Crops characterized at PGRC

Crop	**No. of Accessions**
Rice	3203
Okra	611
Tomato	514
Chilli	156
Maize	386
Brinjal	322
Green Gram	307
Cowpea	268
Common Bean	246
Yard Long Bean	357
Soybean	100
Other	1223
Total	**7693**

About 15 promising crop varieties developed using PGRC accessions have been released by the Department of Agriculture (Table 3).

Table 3. Crop varieties developed using seeds conserved at PGRC

Crop	**Variety**
Durian	Kasun
Papaya	Rathna
Bean	Gannoruwa Green
Brinjal	Amanda(AC08104,AC05124), Anjalee (AC08890), HORDI Lenairi (AC08890)
Luffa	Asiri (AC00807)
Capsicum	Lanka Yellow Wax (AC00077)
Green chilli	Wasana (PGRC selection)
Soybean	MISB1 (AC10966)
Horse gram	ANK Brown (AC01367), AMK Black (AC00754)
Beans	Gannoruwa Green
Mae	HORDI- A9 (PGRC Acc)
Finger millet	Oshadha (AC000108)

One of the important responsibilities of PGRC is to identify important traits in the generic resources conserved within it. Several important traits such as blast resistance, BPH resistance, drought and salinity tolerance have been recognized in some of the rice varieties conserved (Table 4).

Table 4. Important traits reported from rice PGR conserved at the PGRC

Variety	Important traits
Murungakayan, Podi wee, *O. nivara, O. eichingeri*	Blast resistance
Dahanala, Kalubalawee	Thrip resistance
Rathuheenati, *O.eichingeri,* Suduhandiran, Balamawee, Suduru samba, Mawee, Hondarawalu	BPH resistance
LD 183, *O.granulata*	Drought tolerance
LD 183-7, At 353, At 354, *O. rufipogon*	Salinity tolerance

Molecular applications including gene tagging and gene identification are also being carried out. Pre breeding activities, diversity analysis and development of core collections are some of the other areas handled by the molecular laboratory. Use of molecular techniques for crop improvements is another important area of research at PGRC.

PGRC distributes seeds among stakeholders (Farmers, researchers, NGOo). The numbers of samples distributed in 2013 was 1160 while 1705 and 1168 accessions were distributed in 2014 and 2015 respectively.

Training programs are conducted at PGRC for thousands of people belonging to various categories including farmers, students, scientists (local and foreign) and government officers. PGRC Auditorium is a popular venue for conducting seminars, workshops and meetings in Kandy area.

During the recent past PGRC had several projects funded by international donor agencies such as JICA, USDA, IPGRI (Bioversity),AFACI, and GEF. The local funding sources are the government, NARP and NRC.

Currently, PGRC is headed by an Additional Director who servesunder the Director (Seed Certification and Plant Protection Centre) of the Department of Agriculture. The staff of the PGRC consists of 06 Assistant Directors of Agriculture of the Sri Lanka Agriculture Service,05 graduates in the graduate assistant scheme (02 program assistants and 3 development officers),

03 Research Assistants and 03 Agricultural Assistants (Middle Level Technical Service) and 03 Technical Assistants. In addition there are 56 supporting staff.

The PGRC has not been reviewed formally by an independent body during last 25 years. 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. Thus present review was conducted with the objective of identifying strength and weakness of the PGRC to enhance its activities towards the sustainable utilization of genetic resources for the national development.

2. PROCEDURE ADOPTED FOR PERFORMANCE OF THE REVIEW

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 was guided by the directions given in the guidelines prepared by NASTEC for the performance review of S&T Institutions.

The Plant Genetic Resources Centre invited NASTEC to review the institution in November2016. NASTEC in consultation with the Plant Genetic Resources Centre entrusted the review task to a team of 4 members selected based on their expertise. The self-assessment report of the Plant Genetic Resources Centre was made available to NASTEC.

NASTEC met the review team on 30th November 2016 explained the objective of the review 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 they wished to meet during the site visit and submitted a time table for the review.

The site visit was carried out during 20-21 December 2016 (Annexure 1). The initial meeting of the review team with the AdditionalDirector and the scientific staff was held to brief them regarding the objectives of the review, clarify why and for whom the evaluation is being done, describe the benefits to the institution and cultivate support for the evaluation. This was followed up by a presentation by the AdditionalDirectorof the institution based on the submitted self-assessment report.

The review panel held discussions with members of different categories of staff (Research officers, Technical Officers, Administrative and Supporting staff). The review team also visited all the divisions of the Plant Genetic Resources Centre (Exploration and collection unit, Seed Conservation unit,Multiplication, Characterization and Evaluation unit,Biotechnology and In-vitro Conservation unit, Data management unit and the Farm Management unit) and held discussions with the officers attached to each unit. In addition review team went through the documents (annual reports, log books, research publications) provided by each division (Annexure 3).

Twenty nine stakeholders were consulted (Annexure 2) and astake holder meetingwas held on 24th January 2017 with the PGRC staff. During this meeting attended by 24 stakeholders, information on services provided by the PGRC to different categories of people (Farmers, Scientists, Private sector, University students and academic staff) was obtained. Furthermore, suggestions from different categories of people were also collected.

Some of the participants of the stakeholder meeting held at PGRC on 24thJanuray 2017

Based on the information obtained by the above sources, report was prepared and the management and output assessments are given in a Table format.

3. MANAGEMENT ASSESSMENT

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

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		√		In establishing goals and planning of organizational strategies of the PGRC, relevant policies and development goals of the government are considered by the higher authorities of the Department of Agriculture. The Director General of Agriculture obtains views of the Director (Seed Certification and Plant Protection Centre) who is in charge of the PGRC in setting up goals and planning organizational strategies.
The organizational mandate (as specified by the relevant Act) is considered in strategic planning		√		The organizational mandate is considered in strategic planning However, as the strategic planning is conducted at a higher level the mandate of the Department of Agriculture gets the priority.
The institution is responsive to changes in Government policies and strategies			√	The institution is not involved in changing government policies and strategies.

Factors such as strengths, weaknesses, threats and opportunities are considered in strategic planning			√	SWOT analysis is sometimes conducted in strategic planning. However, in depth analyses are not always practised.
Stakeholders needs are taken into consideration in strategic planning		√		Stakeholder needs are considered to a certain extent in strategic planning.
The Board of Governors is involved in strategic planning		√		Currently there is no Board of Governers. The AdditionalDirector and senior staff is involved in strategic planning when requested by the Director (SCPPC).
The extent to which staff members are involved in strategic planning			√	Senior members are consulted and discussions are held during strategic planning when requested.
Government allocations and alternative funding opportunities (donor funding) are considered in strategic planning		√		All funding mechanisms (public, private and external) are considered in strategic planning. This is done when preparing the budget estimates for the planned activities. Priority is however, given for government allocations.
The extent to which policies and plans of the organization are reviewed and updated			√	Reviewing and updating of policies and plans are not conducted regularly.

Additional observations (if any)

As the planning activities are carried out at higher level the contribution and concerns of the PGRC scientists are not fully incorporated. This can be remedied if PGRC is headed by a Director directly under the Director General of Agriculture.

ii) 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		√		In planning programs and setting priorities, relevant national development goals are considered by the higher authorities of the Department of Agriculture.
Board of Governors participate in planning and priority setting of program		√		There is no Board of Governers for PGRC.The Additional Director and senior staff is involved in planning and priority setting of programs to a certain extent.
The extent to which the staff of the institution participate in programme planning and priority setting		√		Senior members are consulted and discussions are held during planning and priority setting when requested.
Stakeholder interests are considered in programme planning		√		Stakeholder needs are considered in program planning only to a certain extent.
The extent to which programmes are planned and approved through appropriate procedures			√	Programs are planned at higher level and no approvals are obtained from stakeholders

The extent to which the availability of funds (government allocations and other funds) generating funds are taken into consideration in planning programmes		√		Budgetary requirements are taken into consideration based on the estimated treasury provisions. Generating external funds is not considered adequately in planning programs.
The obtaining of necessary equipment is considered in planning programmes		√		Obtaining of necessary equipment is considered in planning programs.
Stakeholders are represented in the institution's planning and review committees			√	Stakeholders are not represented in the planning or review committees.
The extent to which socio economic and commercialization of aspects are considered in programme planning.			√	Socio economic and commercialization aspects are not generally considered in program planning
Effectiveness and efficiency of institutional procedures in approving new S& T programmes.			√	As PGRC is not an independent institute the effectiveness and efficiency of approving and implementing new S & T programs are hindered.

Additional observations (if any)

1. Planning programs & setting priorities for PGRC can be improved by giving more autonomy to the head of PGRC by elevating the position to a Director level.
2. The participation of stakeholders in planning at all levels (farmer, corporate sector, scientists) should be considered.Socio economic aspects and commercialization needs should also be addressed in planning.

iii) 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		√		The projects are planned and developed based on the discussions at the Plant Breeding and Biotechnology Working Group Committee meetings. However, it may be necessary to support and provide clear guidance for planningthroughout theproject. This may be achieved by establishing a Central planning Unit with experienced scientists within and outside the institute.
Previous research results/data are used for planning projects		√		Scientific staff develop proposal based on problems identified by the Department of Agriculture and results of research conducted in the past. For this scientific staff should have good access to journal articles, research publications and other materials required for developing research proposals. Thus it t is essential to have an access to Data Base through the Library to obtain required information. It would be useful to maintain good collection of references which are specific to Plant Genetic Resources at the Institute Library. Furthermore, good internet facilities will be essential.

The extent to which the institution follows a formal process for preparation, review and approval of projects	√			The officers follow stringent guidelines provided to them by the Department of Agriculture according to administrative and financial regulations. The Institute has to follow a long procedure to get approval for any project or a development activity. As a result, some activities (e.g. maintenance, replacement) are delayed. These delays can be minimized if Institute has a certain degree of autonomy (e.g financial allocations, submission of research proposals etc.).
The extent to which organizational plans (e.g. medium-term plan, corporate plan, strategy etc.) are used to guide project selection and planning	√			Institute has already developed a proposal and submitted for funding to JICAfor organizational plans. A cabinet paper was also prepared for upgrading the PGRC.
Multidisciplinary projects/ activities are encouraged by the institutions	√			Most of the projects are planned according to the mandate of the institute and some others are based according to the National Priorities. Most of the projects are multi-disciplinary and there are many interactions with outside institutes (e.g. Universities, Other Research Stations)

Foreign collaborations are encouraged and incorporated in planning.	√			Plant Genetic Resources was established as a JICA funded project and supported by them for further 5 years in human resources development as well as in scientific support through experts. In addition to that PGRC is having projects funded by several other international organizations. Further collaboration with foreign institutes should be encouraged to improve human resources and other facilities available in the institute.
Partnership with private sector is encouraged by the institution		√		PGRC is having partnerships with private sector (e.g. CIC, Heyleys) and farmer organizations. It provides germplasm to private sector without any charge as a service. However, there is no contribution from private sector for the development of PGRC. Thus it is essential to develop a mechanism to have two way interactions(Knowledge transfer/feedback) between PGRC and private sector with benefits to both parties. This can be achieved by having strong agreements between PGRC and private sector organizations.
The extent to which development research/activities are considered in planning projects	√			Institute prioritizes applied or developmental research based on its mandate and National priorities

The extent to which basic research are considered when planning projects		√		Basic research conducted are minimum and depends on preference of the officers involve in the specific areas. It is essential to do basic research in addition to applied research. Basic research in areas such as Molecular Characterization, Seed Physiology and basic requirements of cryopreservation will be beneficial for developing technologies to preserve germplasm. Thus, it is essential to train officers in specified fields as well as retain them to achieve targets of the institute. It may also be possible to have external collaboration (e.g Universities) to conduct basic research.
The degree to which adverse effects on environment are considered in planning projects		√		Adverse climatic effects are not relevant to germplasms stored as seeds or germplasms multiplying in green house conditions. However, it is essential to take precautions to prevent any damage to germplasm maintained under field conditions or as ex situ conservation.

Additional observations (if any)

1. Development of facilities for basic research and staff training programs for areas such as Seed Physiology, Cryopreservation will be beneficial
2. There should be a mechanism to retain trained staff at PGRC
3. A Central planning Unit with experienced scientists (internal/external) needs to be established to provide guidance in R & D activities.
4. PGRC need autonomy to perform work efficiently

iv)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.)		√		The institute allocates resources based on the annual plan submitted by the respective units at the beginning of the year. However, onlyafraction of the requested budget is received by the units, which is not sufficient to carry out year-round planned activities. It was also noticed that some units need more recurrent budget allocation than others for day to day activities (e.g. Exploration unit). In addition, basic facilities such as computers and Internet were not provided to some units.
Ensuring that instruments, equipment and infrastructure facilities are sufficient for implementation of projects			√	Since the institute is more than 25 years old, most of the physical resources are obsolete at present and need urgent replacement. The institute receives most of the equipment and instruments from foreign grants.Important facilities such as the computer server of the Data management unit is out of order and it was not replaced till now.

The effectiveness of administrative procedures and support for project implementation (procurement and distribution of equipment and materials, transport arrangements, etc.)		√		The effectiveness of the administrative procedures is moderate. Recruitment of an Administrative Officer and Accountant could enhance many administrative procedures. It was noticed that staff is not satisfied on procurement procedures, since it takes long time (3-6 months)
Formal monitoring and review processes are used to direct projects towards achievement of objectives		√		Formal monitoring and review process is not properly adhered within the institute. However, project progress and problems encountered are discussed at monthly staff meetings. In addition, staff has to provide brief annual progress report to the Department.
The extent to which the researchers are supported by the required technical / field staff.			√	Technical staff allocation is not adequate and also they have not being given appropriate training on relevant areas. Field staff is managed by maintenance and farm unit. Allocation of field staff for research is not regular when special events are held in the conference hall. Therefore research activities get affected.
Ensuring that established field / lab methods, and appropriate protocols are used	√			Refers to foreign literature and also consult international conservation centres when developing protocols.

Research projects/ S& T activities are completed within the planned time frame.	√			Almost all the research projects planned during the period of 2013 to 2015 are still ongoing.
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.			√	It was noticed thatthestaff has very poor access to scientific journals and International data bases. In addition, it was also revealed that Internet access is not given to all the units and speed of the Internet is slow. The institute conducts collaborative research work with universities and other research institutes of the Department of Agriculture.
The extent to which quality assurance practices are followed by the institutions		√		Although there is no proper quality assurance mechanism, the institute ensures that the standards are maintained.
Ensuring that researchers/ scientists have access to computers and necessary software		√		Units are having limited access to computers. However, maintenance and Farm unit do not have access to computerfacilities.

Additional observations (if any)

1. Since the management of PGRCcomes under the Seed Certification and Plant Protection Centre, allocation of resources may not get adequate priority.
2. A forum should be arranged for annual monitoring and review of the research projects and provide feedback about the activities.

v) <u>Human Resource Management</u>

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)			√	There is no database containing staff information at PGRC. However, being an institution that comes under a government Department, PGRC staff details are generally maintained as personal files at the administrative office(s).Although these files contain information on bio-data, disciplines and experiencebut no information on publications and other professional achievements are available at the institutional level.INFORM database, maintained by SLCARP, includes some of the staff information.

The institution, plans and updates its staff recruitments based on programme and project needs			√	Staff recruitments are decided and done at a higher level in the Department of Agriculture (DOA) according to the cadre vacancies. When the new recruits are appointed they are distributed based on the cadre vacancies of each division. Approved cadre of PGRC includes 16 Assistant Directors of Agriculture, 2 Principal Scientists and an Additional Director. Planning at the institutional level for staff requirements needs improvement.
The effectiveness of the selection procedures and the schemes of recruitment		√		New recruits having qualifications/experience on generic resources are usually selected for PGRC. Selection of those new recruits is done following a standard selection procedure that includes an examination conducted by the Department of Examinations followed by a structured interview. However, there are some officers who are transferred from other stations to PGRC through internal transfer system of DOA. Usuallythe officers with a plant breeding backgrounds are transferred to PGRC.
Training is based on institution and program objectives and on merit,	√			Selection of staff for training is based on the discipline, programme requirements and merit.

The effectiveness of the procedures in promoting a good working environment and maintaining high staff morale.	√			The Head of the institute maintains a good working environment for the staff while promoting cordial interpersonal relationships.
The effectiveness of staff performance appraisals		√		The routine government performance appraisal system is being conducted at present
The effectiveness of rewards and incentive schemes in motivating the staff			√	There is an award scheme for DOA officers connected to Annual Symposium of Department of Agriculture (ASDA). However, there is no scheme of incentives exclusively for PGRC staff. An allowance of 25% of the salary is given for the scientists who conduct research with external funds.
The effectiveness of managing staff turnover, absenteeism and work interruptions.		√		In dealing with managing staff turnover, absenteeism and work interruption, normal government procedure (as per Establishment Code) is followed.

Additional observations (if any)

1. When selecting scientists for PGRC, qualifications and experience relevant to PGR should be considered as it is a highly specialized institute.
2. There should be a proper mechanism to retain qualified and experienced scientists for a substantial period in the PGRC without affecting the continuity of research and development programs.

vi) 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		√		Due to the procedural delays and financial constraints achieving targets are been delayed. This can be highlighted by citing the Exploration unit where the division faces difficulties in planning field explorations.
Infrastructure (buildings, stations, fields, roads) is satisfactorily maintained.	√			There is no designated staff for maintenance of the infrastructure at the institute. Currently it is carried out at the expense of the staff allocated to other mandated activities. This hinders research activities such as maintaining field gene banks and plant houses.
Vehicles and equipment (lab, field, and office) are properly managed and maintained.	√			Most of the equipment and other infrastructure facilities are more than 25 years old and need repair and replacement.

The effectiveness of procedures to ensure that equipment are in working order	√			A proper training for staff members in their particular mandated responsibility would enhance the output of the institute. With the technological advances training on new areas and associated equipment should be encouraged, as an example the cryopreservation process. Further overseastraining programs (preferably in Japan) in Plant Genetic Resource centres should be provided. It was noted that the Head of the maintenance division is an AI (with basic degree and MSc in Agriculture.) where he is also responsible for water and electricity of the institute. As the PGRC is highly dependent on electricity (Cold rooms etc.) a person with a proper background should be appointed or a proper training should be provided. According to the observations the whole power unit is a unique piece of equipment that has been especially designed. Therefore training could be arranged in Japan, the original place that was responsible for the set up.

The effectiveness of the institution's overall strategy in generation and proper utilization of funds			√	The institute has two main avenues of generating funds; those are PGRC conference hall and circuit bungalow. However, no proper strategy is implemented to effectively generate funds. In many occasions the conference hall is given to outsiders free of charge or for a nominal fee (e.g. in 2016 only Rs.210,000/= was earned from conference hallalthough 67 events were heldwithin that year).At present all generated funds are deposited in the consolidated fund and PGRC does not have any opportunity to utilize those funds to its improvement. A mechanism should be drawn to utilize the generated funds by the PGRC efficiently and effectively e.g. by directing to a Trust Fund managed by a Board of Trustees
The extent to which the institution identifies opportunities for income generation and cost recovery			√	Apart from aforesaid two avenues of income generation, the institute has not identified other income generation sources. However review team observed that the PGRC have been conducting many training programmes annually and also providing accessions and services for public and private sectors free of charge. Those sources could be used to generate income.

The extent to which the intellectual property rights of the institute are protected			√	Since the PGRC is safeguarding most of the valuable collections of germplasm, intellectual property management is an essential item to be introduced. Therefore, in time to come the institute must consider on this aspect more carefully.

Additional observations (if any)

1. PGRC needs to establish income generating activities and the money earned should be deposited in a trustfund.
2. Original structural drawings of the laboratories, buildings and equipment placements have to be preserved in a secure place.
3. The equipment at PGRC needs repair and replacement immediately and the relevant technicians need to be trained overseas (in Japan).
4. It is necessary to get the services of a lawyer qualified in the field of Intellectual Property Rights for PGRC.

vii) <u>Coordinating and integrating the internal functions/ units/activities</u>

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			√	According to the information gathered during the visit there is no mechanism for internal evaluation of the institute and no restructuring of the institute after establishing it. However, it may be possible to identify new areas to be explored, strength as well as weakness of the institute and restructure accordingly. It may be possible to establish small substations for germplasm collection at each Research Station belongs to the Department of Agriculture, which may reduce the travelling/subsistance costs. Furthermore, field gene banks can be maintained at each research station by these substations (e.g. Fruit Tree Collection at Horana)

The effectiveness of internal communication and coordination mechanisms		√		The institute conducts meetings once a month and progress of the ongoing programs are reported. Furthermore, information collected by different units is passed to the next unit through formal procedures (hard copied). As a result of that there is a delay in reporting to data management unit. As an example species collected by the exploratory unit are not reported to conservation and data management unit immediately. It was observed that there is no management information system or network of computers within the Institute. Therefore, it is essential to develop a computer based management information system to enter data from different units which can easily be accessed by all the other officers in the institute.

Institution's overall direction and coordination are provided by a central planning committee / unit.			√	Research and development activities are planned by Research Officers based on the recommendations from Plant Breeding Working Committee meeting and discussed during the monthly staff meetings. However, there is no Central Planning Unit for the Institute and therefore, lack coordination between activities. If there is a Central Planning Unit, activities which involve all units can be planned and institute can work in one direction with specific targets and objectives. Thus, establishment of a Central Planning unit within the Institute can be identified as an essential requirement.
The extent to which different units are assigned clearly defined functions	√			Plant Genetic Resources Centre was established with 05 technical units based on a clearly defined mandate. These units are having specific responsibilities and tasks to be conducted.

Responsibilities of research / management staff are clearly identified	√			All the officers (Research and Management Staff) are having very clear idea about their responsibilities as well as their duties within the Institute. However, lack of financial support for planned activities (e.g. travelling and fuel costs for the collection of germplasms) and lack of staff within the institute are the barriers to achieve the targets. Furthermore, efficiency of scientific staff is reduced due to long official procedures to be followed (e.g. frequent submission of reports, long channel for getting approval for day to day activities) in addition to their routine work.
Effectiveness of using appropriate reporting procedures and feedback in management at different levels		√		Each and every activity conducted by the institute is reported to the Director General of Agriculture regularly (monthly and annual progress reports etc). The reporting procedure occurs through a long channel. However, Institute does not receive a feedback for their activities. Thus, it is essential to develop a mechanism to receive a feed back to improve the quality of the work carried out by the institute.

Additional Comments

1. It is essential to establish a Central Planning unit
2. Restructuring of the PGRC according to present/future needs and establishment of substation at different Research Stations is essential
3. Development of MIS (Management Information System) is essential

viii) 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		√		The institute hasbeen engaged in sharing technology, dissemination of information by providing vast amount of training programmes annually. Nevertheless it has been noticed that almost all the programmes conducted are not systematically planed but on request from the stakeholders.
The extent to which the institution plans and maintains linkages with key partners for sharing and dissemination of information	√			The PGRC developed many linkages with public and private sectors mainly conducting training programmes, supervision of undergraduate research, providing materials etc.
The effectiveness of institutional procedures for technology transfer	NA	NA	NA	Technology transfer is not a mandate of the PGRC.

The effectiveness of the system to obtain feedback from different types of stakeholders		√		The institute has no systemto obtain formal feedback from stakeholders regularly. But, it has been observed that many appreciation letters have been received from the stakeholders for the services provided by the PGRC. Also the meeting held with stakeholders revealed that most of the stakeholders value the services rendered by the PGRC.

Additional observations (if any)
Training programs/workshops/seminars can be organized systematically to attract both local and regional participants for the benefit of both PGRC and participants. They can also be used to generate income.

ix) 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			√	According to the information gathered, all the divisions submit progress reports monthly which are been discussed and submitted to the Department. However there is no methodology adopted to evaluate the progress. It is essential to develop a method to evaluate the progress and activities periodically by an expert team. During this evaluation/s any feedback from the stakeholders could also be discussed.
M&E is supported by an adequate management information system (MIS), which includes information on projects (e.g. costs, staff, progress, and Results).			√	At present the institute does not possess an adequate MIS system. Such a system should be developed with the assistance of the expertise available within the Department of Agriculture.

The extent to which S& T results and other outputs are adequately reported internally (e.g. through reports, internal program reviews, seminars).		√		The institute reports the results and other outputs at the monthly progress report meeting. However there are no progress reviews or seminars beenconducted. Such a system, if adopted, would open up a dialogue among the different divisions.
External stakeholders contribute to the M& E process in the institution			√	At present the institute doesn't have an organized method of obtaining the feedbackfrom the stakeholders. The Characterization division has a certain amount of contacts with stakeholders. The PGRC should adopt a formal mechanism to get a feedback on the activities of the institute. This could be done by signing an agreement between the institute and the stakeholders at the time of providing services.This is very important, especially with seeds provided to the private sector.
The extent to which the results of M&E are used for project/ research planning and decision-making.			√	Currently the M & E are not adequately practised. This could be improved by establishing progress monitoring seminars and periodic reviews.

Additional observations (if any)

1. It should be encouraged to develop a system to have an annual progress review and monitoring sessions to discussthe targets and constrains.
2. A method to implement the results/outputs in future plans has to be developed.

4. OUTPUT ASSESSMENT

Output Category	Nos.	General Comments on quality and relevance of outputs and productivity of institution
1. **Technologies Developed** • New products / technologies • Improved products / technologies / laboratory methods • New planting materials / seed varieties	- -	It is not the mandate of PGRC to develop new products/technologies. The following technical activities have been conducted during the 2013-2015 period. Conservation and management of 13,900 accessions of crop plant genetic resources Maintenance of 180 *in vitro* conserved accessions Identification of 05 drought tolerant rice accessions and 01 wild rice species Identification of virus resistant wild relative of okra 15 new varieties belonging to 12 crops have been developed by using seed stocks preserved at the PGRC
2. Technologies transferred to industry / entrepreneurs • Technologies developed locally • Foreign technologies adapted and transferred	-	Germplasm conserved at the PGRC have been provided to private sector and researchers

3. Information Dissemination / Extension ***Publications*** ▪ Catalogues ▪ S & T institutional review reports ▪ Training manuals ▪ Advisory leaflets ▪ Maps ▪ Posters ***Dissemination events*** ▪ Workshops and seminars ▪ Conferences ▪ Exhibitions ▪ Media events ▪ Open days ▪ Demonstrations ▪ Training programs	 08 4 20 02 02 362	Crop characterization catalogues were published forRice, Mung bean, Brinjal, Tomato, Okra, Luffa, Wing bean and Yard long bean. Training programs are generally conducted on request. It is advisable if those programs are planned systematically based on relevant subject areas.
4. Publications • Research papers in ISI journals • Other research papers • Conference proceedings • Books and monographs • Technical reports • Research reports	 01 10 13 - 04 02	The publication record of the PGRC for the 2013-2015 period does not reflect the work carried out by the scientists. They need to be encouraged to publish their research findings in reputed journals.
5. Patents		

Individual • Local patents • Foreign patents ***Institutional*** • Local patents • Foreign patents	 None None None None	PGRC should pay attention to IP matters and venture into developing new patentable varieties and technologies.
6. Services (Testing, Calibrations, Consultations, Advisory and etc.) • Research grants awarded and administered • S&T surveys and maps • Science popularization activities • Consultancy services • Testing and analytical services • Seed production and distribution • Germ –plasm conservation • Recommendations in S&T matters	 01 (local) 03 (foreign) - - - - - - -	Currently PGRC has one NARP funded research project and 03 foreign funded projects. The scientists need to be encouraged to apply for external grants. PGR maps can be prepared using GIS which could be used for conservation studies. PGRC could generate income by providing consultancy/ analytical and testing services related to plant genetic resources. PGRC facilities could be provided to outsiders for storing valuable germplasm at a cost
7. Trainings ***Staff training programmes*** • Local • Foreign ***Training programmes for stakeholders***	 08 12 4653	Number of staff training programs per year need to be increased.

School children University students Students of Agriculture Schools Teachers In plant training students Farmers Others	1612 783 352 20 446 1440	Approximately 5000 stakeholders of different levels are being trained per year at PGRC. This was appreciated by stakeholders at the meeting withthe review team.
8. Other **Germplasm distribution from 2013-2015**		Number of samples distributed 2013- 1160 2014- 1705 2015- 1168

- **Total S & T staff strength of institution …**Although its full capacity is not being utilized PGRC is one of the highly specialized, unique research institute in Sri Lanka with 03 PhD holders, 04 Master's degree holders and 02 BSc graduates.
- **Comments on productivity of institution based on outputs and S & T staff strength**

In spite of the limited resources and the constraints, the output of the PGRC scientists is commendable. However, to enhance the productivity and output of this institute, staff strength in terms of number and capacity should be increased.

Considering the importance of genetic resource conservation, fullest support should be given to PGRC since it is the only research institute directly involved in PGR in Sri Lanka

4. CONTRIBUTION TO THE NATIONAL DEVELOPMENT

Sri Lanka is considered as one of the bio diversity hotspot in the world and has large number of germplasm, which are important especially in agriculture sector. In general country processes many Landraces and traditional cultivars of many crops species providing important gene pool for crop improvement. The availability of large number of germplasm can also play a very important role as a source of resistance to biotic (pests and fungal diseases) and abiotic (e.g salt tolerance) stresses in crop varietal improvement programmes. However at present this wealthy variability of gene pool has been exploited marginally, leaving a great deal of opportunities for the future development of improved cultivars by national breeding programmes.

The Plant Genetic Resources Centre of the Department of Agriculture, Sri Lanka is responsible for conserving and management of germplasms especially for food crops growing in Sri Lanka. There is a worldwide concerns have been raised about the reduction of the agro-biodiversity and the erosion of plant genetic resources. Thus in this situation Plant Genetic resources Centre has very big role to play by collecting and conserving the valuable germplasms available in Sri Lanka and identifying useful genotypes, to make them more readily available and to add value to the genetic diversity available for crop improvement programmes. At the same time *in situ* and *ex situ* conservation preserve threatened crop genetic resources.

Farmers and other stakeholders are not sufficiently aware of the value of crop wild relatives and wild food plants. Therefore, the Plant Genetic Resources Centre has a role to play in improving farmer's knowledge on *in situ* management of local varieties for utilization.

The Plant genetic Resources Centre distributes seeds of traditional varieties (e.g. rice) to various individuals (farmers, researchers, private sector). These programmes are useful to improve farmers' accessibility to quality seeds as well as to improve the economy of them. Thus, Plant Genetic Resources centre can take initiative to promote commercialization of underutilized field and horticultural crop species in many parts of the country and in collaboration with Field Crop research Institute and the Horticultural research and Development Institute of the Department of Agriculture, Sri Lanka.

6. RECOMMENDATIONS

The review team identified different areas to be strengthened in the Plant Genetic Resources centre to enhance its productivity to achieve the goals of the institute towards the sustainable national development in Sri Lanka. The review team recommended followings to achieve the targets of the Plant Genetic Resources Centre.

1. Providingof autonomy to PGRC

Currently, the PGRC is headed by an Additional Director who is responsible for the Director (SCPPC). Director (SCPPC) is also responsible to the DGA for other important national centres of the DOA such as Plant Quarantine centre, Plant Protection Centre and Seed Certification Centre. During the restructuring of DOA in the early 1990s PGRC was placed under a separate Director. Unfortunately, that was changed later. It is suggested that a separate Director, directly responsible for the DGA is needed for the PGRC for efficient management of the research activities unique to this nationally important institute.

2. Development of a Cooperate Plan

PGRC needs a cooperate plan with a time-bound action plan. It is also good to adopt the practice of deriving an annual action plan for each division, stemming out of the Corporate Plan. The current top down approach of planning PGRC activities at higher level of DOA has not been found effective.The Corporate Plan development to be done through an integrated approach with an appropriate level of consultation at divisional levels and also with direct stakeholders. It is need to ensure proper involvement of the staff at all levels when annual action plans are developed.

3. Expansion of the conservation of species

Currently, the Plant Genetic Resources Centre is conserving only crop genetic resources. When it was established over 25 years ago, the main objective was to conserve and promote sustainable utilization of plant genetic resources of food crops of Sri Lanka. Considering the facilities and expertise available at PGRC it is appropriate now to amend its objective to include important plant genetic resources other than food crops. Medicinal and other useful plants such as timber, aromatic, dye, fibre, and ornamental plants could also be conserved at PGRC. Conservation of threatened and endangered plants is also an important national role PGRC could play. PGRC can work in close collaboration with the botanic gardens to conserve those

non-crop species. Botanic gardens in the different parts of the country can play a major role there as field gene banks.

4. Establishment of regional PGR conservation facilities

PGR storage facilities can be developed at regional agricultural research centers and a network of such local centers could be used to expand the PGR conservation, management and utilization activities. These centers should be established to represent the diverse ecosystems in Sri Lanka.

It is also possible to engage traditional farmer organizations through awareness programs to promote growing of traditional varieties and set up community seed banks.

5. Planning and implementation

Proper planning and implementation is mandatory within the institute. It is advisable to create central planning unit with experienced scientist to guide research and development projects and also to monitor and review the projects.

6. Recruitment of staff to PGRC

The number of scientific staff at PGRC is grossly inadequate for a smooth functioning of the activities planned. The current number of technical staff and the expected numbers are given below.

	Current	**Required**
Assistant Directors	06	16
Program Assistants /AMOs	02	03
Research Assistants	03	16
Development Officers	03	01
Agriculture Instructors	03	04
Technical Assistants	03	07

The scientists working at PGRC needs to have proper knowledge on genetic resources. Therefore, in recruiting new officers to PGRC, attention should be paid to select those with

appropriate educational qualifications and experience in PGR. It was observed that there are some senior officers who have been transferred to PGRC from other research stations within the Department of Agriculture. There also it is advisable to select only those who have experience and knowledge on or related to genetic resource handing and conservation. In addition it is very much essentialto retain trained staff for a considerable period of time within the institute without frequent transfers within the Department of Agriculture.

It is needed to place more attention on human resource management when developing the next corporate plan.

7. Capacity building

The SER also lists some training programmes given to staff members. In the absence of details of specific training programmes, such as specialization area, level of training, the review team found it difficult to make a meaningful judgment. However, it is noticed that it is beneficial to improve number of staff training programmes on PGR conservation. It is recommended to develop an annual training plan based on the competence requirements of the staff.

There is an essential need for Ph.D level training for the S & T staff. Therefore more attention should be plaid to provide more postgraduate level opportunities by the institute. At the sametime, the research staff should also be encouraged to explore suitable opportunities.

8. Converting Biotechnology Division into a center of excellence

By developing the Infrastructure and upgrading the laboratories with modern equipment manned by qualified staff engaging in a sound research program, the biotechnology division could be elevated to a center of excellence in molecular genetics in Sri Lanka.

Lack of expertise, by way of quality and quantity, is one of the serious factors hindering this endeavor. It may be possible to attract expatriate, qualified scientists and/or local university researchers to spend their sabbatical period at PGRC to strengthen its capacity.

9. Improvement of infrastructure facilities

PGRC laboratories, plant houses and other units needs upgrading and improvement. This includes improving the storage conditions and capacity of long term conservation facilities. PGRC needs to install CFC free cooling system in the storage facilities and it is essential to convert some into long term storage facilities with -10ºC.

It is better to establish a Management Information System (MIS) covering the entire institution with networking connecting all divisions of PGRC with a suitable service providing mechanism for its sustainable, and efficient operation.

Establishment of a Cryopreservation unit at PGRC is a long felt need. When such a facility is established it will be possible to developand optimize cryopreservation protocols for many species using specific techniques such as cryo-plate method and droplet freezing method. It will also be possible to preserve many species of fruit, root and tuber crops.

Nonfunctioning equipment should be replaced and essential equipment such as temperature, day length & humidity regulated germinators, temperature & humidity regulated seed drying cabinets and dehumidifiers need to be added to the laboratories.

10. Equipment Management Unit

A laboratory instrument maintenance unit needs to be established by appointing of an experienced electronics/instrument maintenance engineer in charge of the unit. The existing original structural drawings of the laboratories, buildings and equipment placements should be preserved within that unit properly in a secure place. It was observed that the equipment at PGRC needs repair and replacement immediately and the relevant technicians need to be trained overseas (preferably in Japan).

11. Intellectual property rights (IPR)

Intellectual property rights (IPR) management is an essential activity in genetic resource conservation. It is useful to get assistance from a hired qualified person in this regard if it is not possible to appoint permanentofficer to deal with such matters. In addition to IPR matters, preparation of MTAs forcollaborative research, Plant Variety Protection (PVP) issues and other related legal aspects could be handled by such a person.

12. Annual Research Review

There are many important research activities conducted at PGRC. However, these research and findings are not readily available for the peers and stake holders. It is better if an annual research review is conducted so that the stakeholders and others can discuss and contribute.

13. Sustainability of the institute

The annual expenditure PGRC is about Rs. 14 million. There are several ways of improving the productivity of the institute by employing cost-effective management practices. One of the

ways of achieving that is to develop income generation activities. Annually PGRC earns only about Rs. 200,000 by renting its auditorium for outside organizations. By employing proper management practices this income could be increased. Besides PGRC can provide services to outside organizationsfor consultancy/ analytical and testing servicesand in the field of molecular genetics at a cost.

The money generated by such activities need to be directed to a Trust Fund managed by a Board of Trustees. The DG Agriculture and the Director, PGRC could be the Chairman and Secretary of that respectively. This board should also consist of a few senior scientists who are knowledgeable in genetic resources of Sri Lanka.

A substantial amount of PGRC's budget goes to pay for electricity. It is recommended to establish solar panels to cut down that expenditure.

Annexure 1 - Review program

Day 1- 20th December 2016

Time	Program
8.30 a.m.- 10.00 a.m.	Presentation on general overview of the institute by Deputy Director followed by discussions with senior officials of the institute
10.00 a.m. – 10.15a.m.	Tea break
10.15 a.m. - 12.00 p.m.	Visit the Exploration unit
12.00 p.m. – 1.00 p.m.	Lunch
1.00 p.m. – 3.00 p.m.	Visit the Conservation unit
3.00 p.m. – 3.15p.m.	Tea break
3.15 p.m. – 5.00 p.m.	Visit the Characterization and Evaluation unit

Day 2- 21st December 2016

Time	Program
8.30 a.m. - 10.30 a.m.	Visit the Biotechnology unit
10.30 a.m.- 10.45 a.m.	Tea break
10.45 a.m.-12.00p.m.	Visit the Data Management unit
12.00 p.m. – 1.00 p.m.	Lunch
1.00 p.m. – 3.00 p.m.	Visit the Maintenance and Farm unit
3.00 p.m. - 3.15 p.m.	Tea break
3.15 p.m. - 4.30 p.m.	Visit the Administrative unit
4.30 p.m.	Observations/Study of Documents

Day 3-24th January 2017

9.00 a.m. onwards- meeting with the stakeholders

Annexure 2. List of Stakeholders consulted

1. Mrs. H.M.P.S. Kumari
ADA (Research)
Horticultural Research & Development Institute,
Gannoruwa.

2. Mrs. Pradeepa Ranaweera
ADA (Research)
Horticultural Research & Development Institute,
Gannoruwa.

3. Mr. K.N. Kannangara
Deputy Director (Research)
Regional Agriculture Research & Development Centre,
Makandura
Gonawila (NW.P.)

4. Mrs. W.M.R. Kumari
ADA (Research)
Field Crops Research & Development Institute,
Maha Illuppallama.

5. Mr. K.G.P.B. Karunarathna
ADA (Research)
Rice Research & Development Institute,
Bathalagoda,
Ibbagamuwa.

6. Mr. W.D. Lesly
ADA (Research)
Fruit Crops Research & Development Institute, Kananwila,
Horana

7. Prof. S.P. Nissanka
Senior Lecturer
Faculty of Agriculture
University of Peradeniya,
Perdeniya.

8. Dr. Prasanthi Perera
Senior Lecturer
Faculty of Agricultureand Plantation Management
University of Wayamba, Makandura,
Gonawila (N.W.P.)

9. Dr. Suneth Sooriyapathirana
Senior Lecturer
Faculty of Science, University of Peradeniya, Perdeniya.
Tel. No. 077-4464293

10. Dr. Lanka Ranwaka
Senior Lecturer
Faculty of Agriculture, University of Ruhuna, Mapalana
Kamburupitiya.

11. Dr. Wasantha Chithral
Senior Research Consultant
CIC Seeds Farm
Pelwehera
Dambulla.

12. Dr. Hemal Fonseka
Consultant Breeder
Heyleys Agro (Pvt.) Ltd.
25, Foster Lane
Colombo 10.

13. Ms. H.M.K.N.K. Hennayake
No. 2/35, Galewaththa, Katugasthota.

14. Ms. T.I.K. Munaweera
"Gamini", Mahawella, Matale.

15. Ms. T.M. Warusawithana
No. 06
Sappuwaththa, Palapathwela, Matale.

16. Ms. S.M.T.T. Siriwardhana
Rathmalgahawaththa, Dunakadeniya
Welipannagahamulla.

17. Ms. M.W.R.G. Monarawila
C/O Dr. K.S. Kumari
District Hospital
Kadugannawa.

18. Ms. M.M.T. Roshima
No. 10
Napana
Gunnepana.

19. Ms. K.G.T.A.K. Abeywickrama
No. 68/2
Pahala Wehigala
Wehigala, Matale.

20. Ms. N.H.L.D. Nanayakkara
No. 160/A
Bomugammana
Diwulapitiya.

21. Ms. R.M.S.P. Karunadasa
449/25
Silverland
Hingurugamuwa Road
Badulla.
Tel. No. 071-7467928

22. Ms. T.M.N.B.K. Thotagodawaththa
61/C, Hillside
Yatigammana
Menikdiwala.
Tel. No. 071-7468457

23. Ms. Arosha Wickramathilake
30/1
Hiddulla
Bulugalla
Handessa.
Tel. No. 075-7544038

24. Mr. Vishantha Mendis
Assistant Director
National Wildlife Research &Training Centre,
Girithale.
Tel. No. 071-4465450, 027-2246773

25. B.M.A.P. Basnayaka
Assistant Director
School of Agriculture
Pelwehera.

26. Ms. M.S.D. Dayaratne
Amarakoonmulla
Thuhiriya.
Tel. No. 071-7836803

27. Mr. M.D.K. Medagoda
71/1, Hapukotuwa,
Jambugahapitiya
Tel. No. 077-9239040

28. Mr. Ruchira Gunathilaka
149/A
'Sithumina'
Deligawala
Waskaduwa
Tel. No. 071-8348457

29. Ms. R.H. Muthugala
156/B
Thanna, Kuruduwaththa weediya,
Gampola.

Annexure 3. List of documents obtained from PGRC for the review

1. Amendments relating to the establishment of PGRC
2. Relevant Act
3. Corporate plan
4. Strategic plan
5. Action Plan for the current year and next year
6. Annual Review Reports (2013, 2014 and 2015)
7. Institute's publications (2013, 2014 and 2015)
8. List of stakeholders with contact numbers
9. List of services providing to general public (stakeholders)
10. Awards received by the institute and the staff
11. List of workshops, training programs, seminars and conferences conducted by PGRC and documents distributed at those events
12. Local and foreign training programs, seminars and conferences attended by the staff
13. Number of undergraduate and postgraduate students trained and the titles of research projects carried out by them
14. Bylaws prepared when outsiders hire the PGRC conference hall and circuit bungalow
15. List of institute generated funds
16. Infrastructure facilities available (e.g. laboratories, auditorium/conference hall, library, green houses etc.)
17. Scheme of staff recruitment
18. Evidence of funded research
19. Evidence of the outcomes of the research projects
20. Minutes of the corporate/strategic/ annual planning
21. Minutes of the monitoring and evaluation committees of funded research projects and other activities
22. Evidence of technology transfers if any or adaptation of any foreign technology
23. Evidence of dissemination of events