

INSTITUTIONAL REVIEW

Bandaranayake Memorial Ayurvedic Research Institute (BMARI)



A report prepared for the

National Science and Technology Commission

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by

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Acronyms

BMARI	Bandaranaike Memorial Ayurveda Research Institute
CEO	Chief Executive Officer
COSTI	The Coordinating Secretariat for Science, Technology and Innovation
HDC	Health Development Committee
ITI	Industrial Technology Institute
ISO	International Organization for Standardization
MRI	Medical Research Institute
NASTEC	National Science and Technology Commission
NGO	Non-Governmental Organization
NHDC	HDC/ National Health Development Committee
NMRA	National Medicines Regulatory Authority
NSF	National Science Foundation
OPD	Out-patient Department
R & D	Research and Development
RDI	Research Development and Innovation
S&T	Science and Technology
SER	Self-Evaluation Report
SWOT	Strengths, Weaknesses, Opportunities and Threats
WHO	World Health Organization

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Executive Summary

The Bandaranaike Memorial Ayurveda Research Institute (BMARI) is the pioneering Government Ayurveda Research Institute established in 1962 based on the Ayurveda act (**Ref.** 1) of 1961and operates under the purview of the Ministry of Health. The Institute consists of the administration section, healthcare service division (OPD, wards & pharmacy), pharmaceutical botany division, pharmaceutical chemistry & medicinal drug quality control division, literary research division, project division, and an herbal garden. Most departments are currently headed by acting medical officers. According to the mandate of the BMARI, it should engage with multi-disciplinary research in Traditional and Ayurveda systems of medicine.

This Review of BMARI was carried out by the panel of experts appointed by the National Science and Technology Commission of Sri Lanka (NASTEC) to assess the current situation and to identify the gaps and required changes needed for the smooth and productive functioning of the institute. It includes the organizational structure, operations, and process, human resource management, infrastructure and policies for the improvements of the institute. It was carried out by the participatory approach abiding by the guidelines of the NASTEC.

Panel members observed the operational activities and performance of the institute thoroughly. Several focus group discussions were done with relevant authorities on the basis of administrative, management, clinical and experimental research facilities and infrastructure. Interviews were carried out with different categories of employees and stakeholders. Institutional reports and records were closely reviewed. Further, panel discussions were held at various stages of the review process to obtain clarifications on controversies and for confirmation of inferences made by panel members. Individual observations made by the panel members were also discussed in detail and included in the report with the agreement of the members. Performance of BMARI was assessed under nine (9) different aspects to identify root causes of poor performance; 1. Institutional response to external and internal environment in planning organizational strategy and Master plan, 2.Planning Science & Technology (S&T) Programs and priorities, 3.Planning S & T/ Research and Development (R & D) Projects, 4.Project management and maintenance of quality, 5.Human Resource Management, 6.Management of organizational assets, 7.Coordinating and integrating the internal functions, units and activities, 8.Managing information dissemination and

and 9.Monitoring, evaluation and reporting. Several recommendations were made by the Team based on the evidence

The panel highlighted the importance of having institutional policies and if necessary, amendments of the Act considering current demand. Following changes are being suggested for the development of the BMARI in a view to serve the country.

1. Providing Autonomy to BMARI

It is recommended to establish a board of management/governing council with members including secretaries/representatives of relevant line ministries, eminent scholars in the field and certified practitioners in the country. Director should directly report to the board of management /governing council.

2. Corporate Plan

It is strongly recommended to initiate a proper mechanism for the formulation of a corporate plan for BMARI with a time-bound action plan.

3. Financial Independence

Propose to establish a finance division at BMARI with director finance or similar position for effective management of financial assets. Also, the panel suggests separate annual budgetary allocation for BMARI from the treasury.

4. Planning and Implementation Unit

Propose to from a central planning unit for RDI with experience scientist to guide, monitor and review RDI projects.

5. Recruitment of Staff to BMARI

Director should be preferably from the Ayurveda sector with strong research background and should be recruited through an open advertisement. The current practice of rotation of staff from the Department of Ayurveda to BMARI and vice versa should be restricted and permanent scientists should be recruited together with a sufficient number of technical officers. The number of scientific staff at BMARI is grossly inadequate for the expected functions. The committee also noted that there is no approved organograme of the institute. The institute should revise the organizational structure creating a hierarchical position for the senior scientists.

6. Integrated Research Teams

Propose to encourage multidisciplinary approaches in research development and innovations with the involvement of scientists, pharmacists, biomedical engineers and clinicians.

7. Clinical and Administrative Audits

It is recommended to establish an auditing system for the research projects, clinical studies, finance management and all the relevant functions carried out in BMARI.

8. Monitoring and Evaluation

It is recommended to establish a monitoring and evaluation procedure for administrative, financial, clinical, research and development activities using accepted tools and do the monitoring and evaluation in regular intervals.

9. Institutional Ethics Review Committee and Committee on Legal Matters

In order to enhance the quality and quantity of clinical research at BMARI and enabling them to publish in reputed peer-reviewed journals, the panel strongly recommends an Institutional Research Ethics Review Committee with the approval of the Ministry of Health. Further, it is important to form a unit or a special committee to handle related legal matters including MOU, agreements and intellectual property rights.

10. Annual Conferences and Institutional Review Meetings

It is proposed to streamline the dissemination processes of research findings such as research symposia, workshops, stakeholder meetings and also performance review meetings continually and regularly. The establishment of an international research collaboration unit is needed to initiate benchmark the global experiences and knowledge sharing. It was also noted during the stakeholders meeting that the most of the stakeholders are not aware of the activities and services provided by the BIMARI. The panel recommends the BIMARI should conduct promotional and awareness programmes among the stakeholders viz. Harbal product industries, Desheeya Chikithsha and Ayurvedic physicians etc.

1. INTRODUCTION

The Bandaranaike Memorial Ayurveda Research Institute (BMARI) is the pioneer state Ayurveda Research Institute, with Multi-disciplinary research complex, research hospital, laboratory complex and a herbal garden spreaded over 17 acres. This institute is in the national health system under the state Ministry of Indigenous Medicine promotion, Rural and Ayurvedic Hospitals Development and Community Health. Entire hospital and laboratory complex is expected to focus on research activities than the routine patients services.

Mandate of this institute is to create possibilities of checking the plant species for medicinal quality, soil experiment, chemical analysis of the herbal raw material and chemical analysis of the constructed formulas. Sri Lanka nearly spends over US \$ 10 Million on importing the herbal raw material mostly from India. There were 74 items, which derived from 72 plant species. Even though few verities could be found in Sri Lanka that is not adequate to match the demand. Out of the 72 varieties 34 plants not being tested for soil compatibility for their growth. Therefore it was a huge challenge that BMARI has with regards to the analytical work.

History of Sri Lankan Traditional medical knowledge goes beyond 3000 years. Ayurveda system, which was originated in India, was introduced in 5th Century BC. It was handed down from generation to generation preserving the originality. This medical knowledge embedded into the native culture and tradition with its compatibility and acceptance of the people. Also it was mainly sustained with the skills and the efficiency of people who delivered that. In some era it received the royal patronage where kings supported to build hospitals and assisted in making medicine. In ancient time there were few kings who were accomplished as physicians and surgeons such as King Buddhadasa 341- 370 AD (Ref. 2, Buddhadasa, 1910). After the introduction of allopathic medicine during the ruling period of British (1915-1948) this tradition was neglected. Resurgence of Indigenous Medicine sector begins after the independence. During the period of Prime Minister, Mr. S. W. R. D. Bandaranaike, Ayurveda Medical collages were taken to the government administration and numbers of new Ayurveda hospitals were established. He also created a separate Department for the management and administration of these Ayurvedic institutions. He wanted to promote the cultivation of medicinal plants, which needs to produce the Ayurvedic formulas. Three years after the death of him in 1962, Bandaranaike Memorial Ayurveda institute was established.

The Traditional Medical system of Sri Lanka has many diverse subcategories including Ayurveda, Siddha, Unani and Deshiya Chikitsa. The importance of these systems has been taken into consideration for many decades. This was originally discussed in the way back in 1930. In 1962 with the collaboration of the Government of India the Bandaranaike Memorial Ayurvedic Research Institute (BMARI) declared opened by the then Prime Minister of India. This institute is expected to provide the leadership in traditional medical research activities in 3 major directions: clinical research, drug research and literary research.

Not only BMARI, the entire Indigenous medical sector is working based on Ayurvedic act number 31 of 1961. It was only amended as act number 7 in 1977. There was no Ayurveda or indigenous policy in parallel to the act. Therefore BMARI didn't have the direction as an institution, with an institutional master plan, annual action plans or strategic framework. Therefore all the units including the laboratory faced several issues with related to the decision making on upgrading of sections such as infrastructure, Human resource, process development and technology integration.

Currently government of Sri Lanka has taken many initiatives to improve the indigenous/ traditional medical system by integrating technology for effective conservation, efficient utilization of medicinal plants and promoting multidirectional research. As the people were gradually moving into the natural medical practices, global market opportunities are rising. Currently China is dominating by contributing nearly 30 % of global market. Sri Lanka is far behind this target; therefore, need highly research driven culture in the indigenous sector for the development of this as an economic venture. Good laboratory practice (GLP) is an essential component in the development of business opportunities, which attract many investors, overseas students, researches and academics. Also, Sri Lanka identified by the International center for plant conservation, Germany as one of the important country that has many native plant, which need preservation. BMARI is one of the listed institutions that need action to protect these plants and maintain a genetic laboratory for research. (**Ref. 3, Leipzig, 1996**).

As the premier institute, BMARI is expected to conduct novel experiments in Indigenous sector on various formulas, products and related traditional practices. It includes application of modern technology in the production and in treatment methodologies of the indigenous medicine. Development of methodologies with related to the production of traditional formulas preserving the entire quality is a challenge compare to the technologies used in the allopathic pharmaceutical industry. Department of Ayurveda expect BMARI to adopt technologies with the production of drugs and other herbal tonics and qwatha or kashaya formulas. This will strengthen the capacity of production to the trending demand of the herbal medicine.

With the significant increase in the global use of Ayurvedic / Indigenous Medical preparations,

concerns on their efficacy and safety is also increased. Therefore, it has become a practice to ensure the standards of each and every formula before reaching the market. The laboratory system has a vital role in this context. BMARI was expected to take the leadership and the challenge through these issues, liaising even with the private manufacturers local and overseas. As Indigenous medical preparations are manufactured with modern technologies to cater the increasing demand, the research laboratories having a major role to standardize medicinal quality and efficacy of the product before prescribe and distribute. Most of the universities collaborate with these activities. BMARI was unable to complete these projects with the given time task, due to the incompetency of laboratories and lack of particular expertise to perform the tests.

According to the Self Evaluation Report of the BMARI, there was a severe shortage of the staff in every unit, especially in the laboratories. The Ministry of Finance and Planning did last amend cadre approval for BMARI in 2013, and permanent research officers for each sections of labs were approved: this included the sections of Botany, Gene Engineering, Agriculture, Plant Science, wanaspathy, Pharmacology, Medical technology, Biology, Food science, quality control, Human Biology, experiment, chemistry, molecular biology, toxicology, Medical micro biology, Medical physics and social science.

The vision and the mission

The vision of the institute is 'to be the leader in Ayurvedic research for the nation' and the mission is 'Focused &well-planned research and development in every aspect of Ayurveda to enhance & improve the contribution of Ayurvedic medicine to the healthcare of mankind'.

Goals

The institution has identified mainly three goals stated in the self-evaluation report provided to us as follows:

i. To ensure the formation of a self-sufficient world community by the application of scientific research methodology based on Ayurvedic principles and concepts

ii. Discovery of new indigenous medical preparations for providing safe, qualitative and economical treatments through Ayurvedic research

iii. Establishment of an appropriate background to provide safe and qualitative therapeutic treatments through Ayurvedic research

The Institute is expected to provide leadership in traditional medical research in the country.

Existing Organizational Structure:

BMARI is managed under the purview of the Department of Ayurveda and headed by a Director. Deputy Director is supposed to assist the Director in the administrative work. It consists of the following divisions & sections:

i. Administration section – functions under the Director, Deputy Director and the Administrative Officer

ii. Healthcare service division (OPD, wards & pharmacy) – functions under a Chief Medical Officer (Residential) and a Chief Medical Officer (OPD)

iii. Pharmaceutical botany division – proposed to function under a Scientist (of Sri Lanka Ayurvedic Medical Service); a formal appointment to this post has not yet been made by the appointing authority, currently, a Medical Officer is assigned to look after the division.

iv. Pharmaceutical chemistry & medicinal drug quality control division - proposed to function under a Scientist (of Sri Lanka Ayurvedic Medical Service); a formal appointment to this post has not yet been made by the appointing authority, currently, a Medical Officer is assigned to look after the division

v. Literary research division – consists of a library and a palm leaf manuscripts depository; a Medical Officer has been assigned to lead the division

vi. Project division – proposed to streamline all development activities; a Medical Officer has been assigned for that purpose

According to the organogram (**Annex 1**) of the Department of Ayurveda BMARI is directly comes under the Department together with Teaching Hospital, Research Hospitals and Herbal Gardens. The committee noted that the institute does not have approved organogram. The positions of the senior scientist is only a virtual post. The BIMARI should revise the organizational structure and develop its organogram giving a hierarchical place for the senior scientists. This review process was conducted with objectives specified by the National Science and Technology Commission of Sri Lanka (NASTEC). The key objective was to assess the gap between the expected outcome and existing functions and utilization of public funds in a view to having a major technology transfer.

Guidelines provided by NASTEC and the expert opinion of the Panel of Reviewers utilized to generate the facts mentioned in subsequent chapters of the report. Panel members observed the institution including the areas related to administrative, management, clinical and experimental research facilities and infrastructure. Different categories of employees and stakeholders were interviewed to get their individual views. Institutional reports and records were closely reviewed. Further, panel discussions were held at various stages of the review process to obtain clarifications on controversies and for confirmation of inferences made by panel members. As a result, it was possible to make final commendations and recommendations which could be utilized by the institution in identifying its strengths and opportunities to plan future activities.

2. PROCEDURE ADOPTED FOR PERFORMANCE REVIEW

Science & Technology 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 review panel was appointed by the NASTEC based on their expertise. The team was guided by the directions given in the guidelines prepared by NASTEC.

NASTEC coordinated BMARI and directed the review team members. The self-assessment report of the BMARI was communicated through NASTEC to the review team on 22nd November 2019. Senior Scientist of NASTEC explained the objectives of the review. The methodology of the review was a participatory approach and during the site visits, the team identified the respective individuals and groups to be interviewed.

The review team and NASTEC representatives visited BMARI, Navinna, Maharagama on 5th December 2019 (**Annex-2.1, Photographs**) Commissioner of Ayurveda was also invited to participate in the initial meeting. The review team explained the objectives, advantages and purpose of the review, to the Director, BMARI and the representative of scientific, management and hospital staff. The Director of the institution made a presentation on the self-assessment report.

Extensive discussions were made with the members of the staff during the observational visits. The review team managed to visit all the divisions of BMARI including the hospital, clinics, library and research laboratories.

A stakeholder meeting was held on 25th February 2020 (Annex-3) to get the views of them as

developmental partners. Representatives of BMARI and the Commissioner of Ayurveda were also invited for the meeting. Outcomes of the meeting were presented in Chapter 5.

Review team finalized the draft with all the factors obtained from various sources and forwarded to NASTEC on 22nd July 2020. NASTEC officials send their comments following the review of the submitted draft on 24th July 2020. The draft document was adapted with comments received after the agreement of both parties send to the BMARI and Representatives of Ayurveda Department for their observations on 30th July 2020. After 3 weeks of period, called upon a meeting to finalize the draft document. The meeting was hosted on 09th September 2020 by NASTEC and sponsored by BMARI (**Annex-2.2 Photographs**). All the stakeholders participated and had a detailed discussion to conclude the review report. Final report adopted based on all the concurrences received and officially handed over to the NASTEC for further activities.

3. MANAGEMENT ASSESSMENT

The ability of an institution to produce useful and relevant outputs depends on internal policies, strategies, management practices. The review team has evaluated the following aspects to identify causes that enhance the performance of BMARI.

- i. The institutional response to external and internal environment in planning organizational strategy and Master plan
- ii. Planning Science& Technology (S&T) Programs and priorities
- iii. Planning S & T/ Research and Development (R& D) Projects
- iv. Project management and maintenance of quality
- v. Human Resource Management
- vi. Management of organizational assets
- vii. Coordinating and integrating the internal functions, units and activities
- viii. Managing information dissemination and partnership
 - ix. Monitoring, evaluation and reporting

Each management practice listed above has been evaluated with reference to the current performance of the BMARI and given the ranks according to the following table. These responses along with comments and shreds of evidence were used as a basis in evaluating the current status of the institution.

* <u>Management practices assessment</u>

1

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

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

	Level of Practice		ice	Comments / Evidence
	(Performance			
Management practice	Stron Modera		Wea	
Government policies and development goals are used/ considered to establish goals and plan an organizational strategy			Х	Poorly defined organizational structure. Annual action plan, targets, goals and activities not timely defined. No clearly defined Institutional Policy/Policies. Absence of National Indigenous Policy is
for the institution				highlighted. Not updated according to the Government policy directions relevant to the sector.
The organizational mandate (as specified by the relevant Act) is considered in strategic planning			Х	There is no properly defined strategic plan align with the organizational mandate.
The institution is responsive to changes in Government policies and strategies			X	Since the strategic plan is not updated according to the available policy directions institution is not responsive to changes in government policies and strategies.

Factors such as strengths, weaknesses, threats and opportunities are considered in strategic planning		X	SWOT is weakly analyzed in the SER.
Stakeholders needs are taken into consideration in strategic planning		X	Stakeholders' needs are not considered in the self-evaluation report (SER).
Government allocations and alternative funding opportunities (donor funding) are considered in strategic planning		X	Government allocations and alternative funding opportunities (donor funding) are not considered in self-evaluation report.
The extent to which policies and plans of the organization are reviewed and updated		X	No reviewing or monitoring process for any institutional or personal activity was observed. This is the major bottleneck for sustainable development.

Additional observations:

- The Ayurvedic Department should take the lead to develop the Traditional Medicine Health policy (cited in National Policy Framework 2020-2025, 'Vistas of Prosperity and Splendour' Page 17).
- BMARI needs to develop its own Strategic Plan.
- Need to develop/revise the organizational structure and organogram providing hierarchical rank for the senior scientist and the two CMOs for hospital and OPD.

ii) <u>Planning S & T programs and setting priorities</u>

1

Program objectives should be consistent with organizational strategies and reflect user needs and development goals.

Managament practice	Le (Perf	evel of Practi formance In	Commonts/Evidence	
Management practice	Strong	Moderate	Weak	Comments/ Evidence
National development goals are			Х	No annual action plan
considered in planning programs				submitted, not align with
& setting priorities				the government priorities
				or not identified
				traditional medical
				sector priorities
The extent to which the staff of the			Х	The staffs of the
institution participate in				institution do not
programme planning and priority				actively participate in
setting				programme planning and
				priority setting.
Stakeholder interests are			Х	No direct intervention
considered in programme planning				and no stake holder
				meetings, do not have a
				list of stakeholders.

The extent to which programmes		Х	Few steps have been
are planned and approved through			taken to have
appropriate procedures			collaborations with
			partners like the
			institute of Nano
			Technology and
			Faculties of Medicine.
			Things went in the
			official channel but no
			established process or
			procedure for those
			partnering agencies
			observed.
The extent to which the availability		Х	No direct involvement
of funds (government allocations			No direct Government
and other funds) generating funds			allocations or no regular
are taken into consideration in			donor funding sources
planning programmes			No vote allocation or
			planned breakdown of
			an expenditure in
			different sectors
			1% of total health budget
			allocated to whole
			indigenous sector. No
			allocations for research
			grants or research
			allowances.

The obtaining of necessary		Х	Since there is no
equipment is considered in			properly designed
planning programmes			strategic plan,
			obtaining necessary
			equipment is not
			considered in the SER.
			It is observed that
			decisions are taken by
			the total external
			authorities or the
			political appointees,
			therefore machineries
			and equipment are idling
			due to underutilization
			due to unavailability of
			trained human resources
			or assigned workload to
			the equipment.
			This has been done in
			an <i>ad-hoc</i> manner.
			Thus, no proper
			planning for effective
			use and
			sustainability.
The extent to which socio-		Х	It is observed that there
economic and commercialization of			is no socio-economic and
aspects are considered in program			commercialization of
planning.			aspects considered in
			program planning.

Effectiveness and efficiency of		Х	There is no evidence of
institutional procedures in			the effectiveness and
approving new S& T programs.			efficiency of
			institutional procedures
			in approving new S & T
			programs.
			It is observed that
			researchers make an
			effort to apply some
			procedures but not in
			a strategic manner.

Additional observations:

- Change the name of the institution giving more weight to indigenous sector.
- To rearrange the vision and mission according to the National Policy directions. Need to introduce KPIs and performance evaluation frameworks for each unit.
- Need progress review meetings regularly in each month with the head of the institution and representative of the reporting authority.
- Need to link with development committee meetings held regularly in the ministry of health (Health Development Committee meetings HDC/ National Health Development Committee meetings NHDC) or they can have their own meetings with only indigenous sector covering all indigenous medical sector institutions.
- Establish the Planning unit, quality unit and information unit within the institution.

iii) Planning S& T / R& D Projects

Projects are the building blocks of programs. For an institution to achieve its objectives, it is necessary for projects to be well planned in terms of their expected outputs, activities, and input requirements.

	Level of Practice			
Management practice	(Performance Indicators)		Comments/ Evidence	
	Strong Moderate Weak		Weak	
The staff is provided with			Х	No proper plan for staff
guidance for project planning				training and capacity
				building align with the
				institutional or country
				needs. The scope of the
				institution is not clearly
				defined. Need better
				leadership to identify the
				evidence-based needs.
Previous research results/data			Х	No data bank
are used for planning projects				and Research repository or
				process to collect or store
				data accurately.
				No mechanism to re -
				analyse the data and act
				according to the evidence
				Therefore, previous
The extent to which the			Х	Few committees are
institution follows a formal				existing but no guidance,
process for preparation,				supervision or follow-up
review and approval of				with experts, no reporting
projects				or evaluating authority. No
				grading system
				Not having collaborated
				with expert agencies in the
				field. Therefore, the review

The extent to which	X	The team didn't observe
organizational plans (e.g.		medium term and co-
medium-term plan, corporate		operate plan in selecting
plan, strategy etc.) are used to		projects.
guide project selection and		
planning		
Multidisciplinary projects/	Х	There are few
activities are encouraged by		multidisciplinary projects
the institutions		conducted but no clear
		outcome-based approaches
		are followed.
Foreign collaborations are	X	No such foreign
encouraged and incorporated		collaborations are
in planning.		encouraged and
		incorporated in planning.
Partnership with private	X	Institution per se is not
sector is encouraged by the		encouraging any
institution		partnerships. But
		individual partnerships are
		existing without having
		benefits to the institutional
		development.
		No PPP models identified
		to match with the BMARI
		mandate.

The extent to which		Х	Operational research
development			studies not being taken into
research/activities are			action or included in the
considered in planning			policy decision process.
projects			There are no such
			mechanisms to
			accommodate research
			findings into the
			developmental activities.
The degree to which adverse		Х	No such standards adhered
effects on the environment			(Ex: ISO standards)
are considered in planning			
projects			

Additional observations (if any)

- Need to develop multidisciplinary research projects with official collaborations.
- Should encourage PPP, Maybe with MOUs.
- Considered national requirement when planning research strategy.
- Develop foreign collaborations maybe through WHO collaborative centres.
- Should Adhered standards (Ex: ISO).
- Need to have an institutional master plan align with government policies and acts.
- Need to collaborate with the Universities/Institutes with best practices in developing the PhD opportunities for the research candidates.
- Need to introduce annual research symposium or annual academic performance

conferences with collaborations within and outside the country.

• Need to get laboratory accreditations.

iv) **Project management and maintenance of quality**

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

Level of Practice			
(Performance Indicators)			Comments/ Evidence
Strong	Moderate	Weak	
		Х	No integrity
			It was observed that only
			the mutual agreement with
			the workload handling by
			each unit is taken into
			considerations in
			allocating resources.
Х			The instruments,
			equipment and
			infrastructure is
			underutilized as they are
			idling most of the time.
			Need to recruit technical
			staff to operate the
			instruments and capacity
			building of them to fit
			with current demand of
			the country. Scientific
			officers / Research stall
		V	Should be recruited
		Λ	implemented
			A dministrative support in
			Administrative support in
			very poor
			Most of projects not
			implemented due to poor
			financial and technical
			incompetency
	La (Perfo Strong	Level of Practi Strong Moderate X	Level of Practice (Performance Indicators) Strong Moderate Weak X X X X Image: Colspan="2">Amount of the second

Formal monitoring and review processes are used to direct projects towards the achievement of objectives		X	No such process was implemented. The review team is not observed a solid monitoring system of the institutional performance.
The extent to which the researchers are supported by the required technical / field staff.		X	No required trained technical and field staff. Need to train the technical staff in GMP, GLP and GCP. As the management did not identify the priorities, researchers do not have sufficient supportive staff.
Ensuring that established field / lab methods and appropriate protocols are used		X	The team did not observe any standard protocol or guidelines with the laboratories.
Research projects/ S& T activities are completed within the planned time frame.		X	Though No action plan. No such action plan or defined time frame. This institution does not align with a scope either.
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	The institution does not provide such facilities for the scientists.

The extent to which quality	X	No such mechanism.
assurance practices are		Quality and safety
followed by the institutions		practices were there, but
		not having supervised by
		anybody, this could be
		linked with National
		quality secretariat or with
		ministry of Health quality
		secretariat.
		At least ISO (9001:2015)
		should be proposed to
		implement in 3 years'
		time.
Ensuring that researchers/	X	Having audiovisual unit
scientists have access to		but not implemented
computers and necessary		virtual system among
software		researchers.
		Computers, software and
		technical guidance or
		Information unit with
		competent employees
		need to be implemented.

Additional observations (if any)

- There are high-tech underutilized machineries in laboratories.
- Need proper training of technical and field staff including GMP, GLP and GCP.
- Need to implement virtual learning methods
- Need to establish more training courses for to develop a research culture.
- Expose outside researches to follow those training courses as an income generation activity.
- Implement collaborations and student exchange programs with benchmark research institutions.
- Budget allocations to the institution from a separate vote for research development.

v)Human Resource Management

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

	Level of Practice		ce	
Management Practice	(Performance Indicators)		cators)	Comments/ Evidence
	Strong	Moderate	Weak	
The institution maintains			Х	No such database available.
and updates staff				We propose a repository
information in a database				access to researchers and
(including biodata,				restricted access to public for
disciplines, experience,				the purpose of dissemination
publications, projects)				of information.
The institution, plans and			Х	Review team was not observed
updates its staff				such details about the projects
recruitments based on				carried out by BMARI.
program and project needs				There were few interviews
				boards but no such data
				available.
The effectiveness of the			Х	The institutional recruitment
selection procedures and				process is not clear as the
the schemes of recruitment				scheme is the general one for
				all under the Department of
				Ayurveda.

Training is based on		Х	No such process.
institution and program			Training programs were
objectives and on merit,			conducted local and overseas
			but the selection criteria are
			not clear.
			The selection criteria for
			overseas training or
			fellowships could be defined
			for all staff categories.
The effectiveness of the		Х	Staff welfare programs
procedures in promoting a			have not been observed.
good working environment			Staff capacity building
and maintaining high staff			programs need to be organized
morale.			in a proper manner covering
			all the categories.
The effectiveness of staff		Х	Performance appraisal system
performance appraisals			is not developed.
			It needs to be updated
			according to the job category
			with identified Key
			performance indicators.
The effectiveness of		Х	No such process.
rewards and incentive			
schemes in motivating the			
staff.			
The effectiveness of		Х	Could not observe employee
managing staff turnover,			retention strategy.
absenteeism and work			
interruptions.			

Additional observations:

1

- All the medical officers served in their government regular framework.
- There should be a permanent appointment in the scientist grade.
- Need to establish human resource management and career guidance unit

vi) Management of organizational assets

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

Management Practice	Level of Practice (Performance Indicators)			Comments/
	Strong	Moderate	Weak	Evidence
The ability of the institution to			Х	This institution does not
carry out its mandate and the				have powers to work
assigned statutory powers				independently.
				Institute should be
				empowered sufficiently in
				order them to deliver.

Infrastructure (buildings,		Very poorly maintained
stations, fields, roads) is	Х	access road inside the
satisfactorily maintained.		institution, herbal garden
		was left neglected in most
		of the areas (only three
		personnel in the herbal
		garden)
		Administrative building
		also not maintained
		Maintenance was found to
		be a very difficult process
		with the existing setup as
		there is no maintenance
		unit
Vehicles and equipment (lab,	Х	Lab was very much
field, and office) are properly		underutilized,
managed and maintained.		Offices do not have basic
		facilities like
		communication, fax and
		photocopies.
		Buildings are not
		maintained adequately.
		Vehicle fleet at BMARI
		are not utilized in effective
		manner.
The effectiveness of procedures	Х	No procedure of
to ensure that equipment are in		maintenance as the
working order		workload is very less,
		machines are idling most
		of the time. No such
		proper process is in place,
		systematic staff training in
		this regard is needed.

The effectiveness of the	X	Funds supplied are grossly
institution's overall strategy in		inadequate.
the generation and proper		Lots of potential for fund /
utilization of funds		income generation, but
		need policy and strategy
		required facilities set in
		place for commercial
		oriented projects. Eg.
		Testing services, new
		products, consultancy and
		training.
		2018 only 77% of
		allocated funds have been
		spent.
The extent to which the	X	Identified in few sections.
institution identifies		But not focused on cost
opportunities for income		recovery.
generation and cost recovery		
The extent to which the	X	No such mechanism and
intellectual property rights		IPR act should include
(IPRs) of the institute are		policy for TM.
protected.		

Additional observations (if any)

- A separate maintenance unit and account section and internal audit system should be established.
- In IPR act policy for TM should be included.
- Need the change in institutional management; it has to be independent as an institute.
- Complete revision for vision and mission and mandate areas needed.

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

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

Management Practice	Level of Practice		ce	
	(Performance indicators)		ators)	Comments/ Evidence
	Strong	Moderate	Weak	-
The extent to which			Х	Could not observe an institutional
institution is evaluated				evaluation process.
internally and				
restructured based on				
current needs				
The effectiveness of			Х	No properly defined internal
internal communication				communication and coordination
and coordination				mechanisms.
The institution's			Х	No such planning committee
overall direction and				was identified.
coordination are				
provided by a central				
planning committee /				
unit.				
The extent to which			Х	No job description was found
different units are				during the observational visit.
assigned clearly				
defined functions				

Responsibilities of	X	Identified but need to develop
research / management		TORs and performance indexes.
staff are clearly		No KPIs evaluated so far.
identified		
Effectiveness of using	X	No monitoring or evaluation unit
appropriate reporting		to assess the feedback.
procedures and		The observed reporting
feedback in		procedure is not scientifically
management at		defined.
different levels		

Additional observations:

- Need to develop a central planning committee.
- Need to develop job descriptions, TORs /SOPs performance indexes /KPIs.
- Need planning, monitoring and evaluation unit for smooth functioning of the institute.

viii) <u>Partnership in managing information dissemination</u>

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

	Level of Practice			
Management Practice	(Perfo	rmance Indi	cators)	Comments/ Evidence
	Strong	Moderate	Weak	
The institution			Х	There is no systematic plan for
systematically plans and				the dissemination of
performs the				information.
dissemination of				
information				
The extent to which the			Х	As the BMARI does not have a
institution plans and				plan to link with key partners for
maintains linkages with				sharing and dissemination of
key partners for sharing				information.
and dissemination of				
information				
The effectiveness of			Х	No sharing basis for any
institutional procedures				technology concerned with
for technology transfer				outside agencies and institutions.
The effectiveness of the			X	Need to have quarterly or
system to obtain				annually meetings with key
feedback from different				stakeholders and development
types of stakeholders				partners to do the monitoring
				and evaluation with assessment
				of the feedback.

Additional observations:

- Need to develop technology transfer mechanism and strong information dissemination method
- Need to implement traditional knowledge digital library (TKDL) like India
- Need to have information unit to look after the technology transferring and digital development and Internet of things in relation to indigenous technology development.

viii) Monitoring, evaluation and reporting procedures

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

	Le	evel of Practi		
Management Practice	(Performance Indicators)			Comments/ Evidence
	Strong	Moderate	Weak	
The institution monitors and			Х	It is not being done so
evaluates (M&E) its own				far, therefore need to
activities periodically				organize performance
				monitoring regularly.
M&E is supported by an			Х	No such mechanism.
adequate management				
information system (MIS),				
which includes information on				
projects (e.g. costs, staff,				
progress, and Results).				
The extent to which S&T			Х	Could not observe
results and other outputs are				standardised reporting
adequately reported internally				system in reviewing the
(e.g. through reports, internal				internal process.
program reviews, seminars)				
External stakeholders contribute			Х	No such mechanism to
to the M & E process in the				get the contribution of
institution				external stakeholders in
				M&E process.

The extent to which the results		Х	This is the evidence-
of M&E are used for project/			based decision making
research planning and decision-			with analysing the
making.			evaluation reports, there
			is no such mechanism for
			decision making and
			identifying research
			priorities
	1		

Additional observations:

- Need to develop internal monitoring system no strategic and action plan.
- Need internal auditory system.
- Need to establish a monitoring and evaluation unit.
- And also need an activity plan to activate the decisions taken following evaluation.

4. OUTPUT ASSESSMENT

The following output indicators have been measured together with the staff strength of the institute. The committee noted that only 172 cadre positions have been filled out of 288 approved cadres in the year 2018.

Types of outputs

- i. Technologies developed
- ii. Technologies transferred to industry/entrepreneurs
- iii. Information Dissemination / Extension
- iv. Research Publications
- v. Instrumentation
- vi. Services (Testing, Calibrations, Consultations, Advisory and etc.)
- vii. Health care services and clinics
- viii. Training
- ix. Patents

b) Output measurements

Output Category	Nos.	General Comments on quality and relevance of outputs and productivity of institution
Technologies Developed New products / technologies Improved products / technologies		No innovative products or services through research were observed. Not observed
/ laboratory methods New planting materials / seed varieties	13008	Medicinal plants have been produced in the herbal garden and distributed. Herbal Repository should be established. (Annex 1)
Standardization and quality control of Drugs	28	Quality control laboratory has done the standardization of herbal drugs
Technologies transferred to industry / entrepreneurs Technologies developed locally Foreign technologies adapted and transferred		Technology Transfer unit should be established. No collaborations with investors locally and internationally. No proper collaboration with private sector

Information Dissemination / Extension <i>Publications</i> S & T institutional review reports Training manuals Advisory leaflets		Not Observed
Maps Posters <i>Dissemination events</i> Workshops and seminars Conferences Exhibitions Media events Open days Demonstrations		
4. Publications Research papers in ISI journals Other research papers Conference proceedings Books and monographs	30	SER
5. Instrumentation	-	Well-equipped pharmaceutical, analytical chemistry, molecular biology, botany laboratory has
Services (Testing, Calibrations, Consultations, Advisory and etc.) Research grants awarded and administered Funding for training programmes and other S&T activities Monitoring of research projects Consultancy services	08	None of the mentioned areas done in institutional level Need capacity building and trainer trainee programs for improvement
[Festing and analytical services	-	Benchmarking with local and

Recommendations in S&T matters	19	foreign experts arranging
		fellowships in universities (Annex1)
	20	
7.Healthcare Service and clinics	20	More than 20 special clinics
		conducted and 7688 OPD (total
	7688	91233 in 2018) patients per
		month have been treated. (Annex 1)
	3	The conductance of Clinical Research should be paid more attention. More staff needed for the hospital (annex 1)
8. Training		
Staff training programmes		
Local		
Foreign	14	
Training programmes for		
stakeholders	05	
9. patents	-	-none

⁻ Productivity of Institution based on outputs and S& T staff strength

1

There are four categories of staff listed below with the actual number employed and cadre allocation in the year 2018.

2018	Approved	Actual	Projection for 2020
Senior level	77	53	Not done
Tertiary level	23	1	Not done
Secondary level	84	39	Not done
Primary level	104	79	Not done

It was observed that the institute has not taken necessary measures to carry out the output assessment following the productivity concepts in a transparent manner. Further, staff training has not been regulated to address institutional needs.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership (UN: https://sdgs.un.org/goals). It is needed for considering sustainable development goals when running a research institute to achieve global accreditations and sustainable outcomes.

Currently, expectations for accreditation and external accountability are increasing and no longer sufficient for institutions to have assessment plans. Instead, institutions should strive to build a culture of evidence with examples of how assessment results are used to improve institutional goals.

Therefore, BMARI should target broader outcomes and embedding assessment into institutional processes such as;

- i. Securing support from the administrative leadership
- ii. Making resources available for and supporting the professional development of staff
- iii. providing a vision for assessment
- iv. Providing and encouraging space for discussion and collaboration
- v. Sharing information widely regarding assessment and results of assessment to both internal and external audiences.
- vi. Engaging more stakeholders.
- vii. Establishing more robust assessment of assessment processes or utilizing the already collected assessment data more effectively.
- viii. Becoming more transparent with assessment processes and results and with sharing promising practices externally.
- ix. Setting institutional priorities and strategic planning
- x. Informing institutional decision making
- xi. Incorporating results into accreditation efforts
- xii. Framing assessment at the institution level

- xiii. Revising institutional outcomes
- xiv. Enhancing collaboration across the country
- xv. Reflecting on assessment processes and institutional practices

5. OUTCOMES OF THE STAKEHOLDER MEETING

Stakeholder engagement refers to the process by which an organization involves people who may be affected by the decisions it makes or who can influence the implementation of decisions. Stakeholders may support or oppose decisions and may be influential in the organization or within the community in which they operate. In this regard, the BMARI Review Committee employed the stakeholder engagement method and the integration of their feedback to make recommendations of this paper practical. Following are the suggestions made by the majority of the group during the stakeholder meeting held on 25th of February 2020.

(Annex-3)

Most of the participants showed their interest in collaborative research work especially clinical research at BMARI. Further, some of them were interested in participating capacity building programs on IPR legislations in collaboration with COSTI and Ministry of Science and Technology. At the same time, they highlighted the significance of a system to promote contract or operational research as services. Participants strongly emphasized establishing quality and efficacy parameters for major Ayurveda and traditional medicine preparations and setting of standards for such products. As a group, they emphasized on a system to explore commercial benefits of collaborations with private sector and public sector institutions and those who engaged in similar industries.

A good researcher becomes a powerful scholar with frequent publications. Frequent research publications by an individual will result in increasing the researcher's credit. A number of recruiters, institutions, look for individuals who have done ample researches and published those in journals. The significance of research publications is immense. This aspect was broadly discussed during the discussion. Therefore, the participants highlighted the significance of encouraging the researchers to publish their papers in indexed journals. To encourage researchers

for quality research library faculties, access to the laboratory facilities of other government institutions and private partners and even a Research Management Committee was proposed in ensuring research governance.

Dissemination is the interactive process of communicating knowledge to target audiences. So that it may be used to lead to change. The challenge is to improve the accessibility of desired knowledge products by those they are intended to reach. This was one of the concerns of the participants. Therefore, it was proposed to conduct regular conferences and symposium in collaboration with public sector institutions and other partner organizations.

6. CONTRIBUTION TO THE NATIONAL DEVELOPMENT

Current Status

At present BMARI is mainly operating as a service proving organization to certain segments of the community through their hospital and clinic activities, and a limited number of services to industries on their request. With the existence of more six decades, remarkable new product or service which was commercialized or with a potential of commercialization could not be identified clearly. There may be some treatments developed through their research activities but could not find evidence of commercialization or getting any patents for these new inventions. A major limitation commonly observed in most of the research activities carried out at BMARI is the lack of adherence to a recognized system of scientific procedure, particularly in clinical studies. At present it is hardly found direct contribution to national economic development except for human resource developments (postgraduates) taking place through their research activities.

However, the Government has pledged to develop the Indigenous and Ayurveda System by allocating more money during the next five years, (cited in National Policy Framework 2020-2025 'Vistas of Prosperity and Splendour' Page 17) expecting the BMARI to take the opportunity to contribute to the national development. (Annex-4)

World Trend and Potential in Herbal and Alternative medicine

The Traditional and Alternative Medicine (TAM) market has been upgraded by increasing demand for natural alternative medicines. The constraint connected with conventional medicines is growing with the changes in lifestyle. The consumer approach of the health benefits of Traditional & Complementary Medicine is undergoing fundamental changes. The Traditional & Complementary Medicine industry has a boom in recent years. The potency of Traditional & Complementary Medicine in both health prevention and treatment has attracted investments from Western pharmaceutical companies as well as venture financiers. In China, Japan, Korea, Southeast Asia and the Asian societies in North America, the Traditional & Complementary Medicine market ranges from US\$6 billion to US\$20 billion depending on the source. With double-digit development in the past years and habitual over the next few years, and more and more studies on Traditional & Complementary Medicine appearing in first-class international magazines such as Nature, and the Journal of the American Medical Association, the World Health Organization (WHO) has projected that the global market for herbal products would be worth US \$5 trillion by the year 2050 (**Ref. 4. Source: Arman Zargaran (2020), 10th International Conference on Traditional Medicine- June 15-16, 2020 | Barcelona, Spain).**

The panel noted from the data given in the SER and Performance report the herbal garden and the nursery has produced considerable amount of raw medicinal materials for Ayurveda co-operation and also for research purposes and for general public According to the information there are only three (3) personnel to maintain this fifteen-acre land. Since it is an income generating centre the measures should be taken to increase the work force and to facelift the garden that would increase the production as well. (ANNEX 1)

BMARI with other relevant authorities needs to set up strong projects targeting this emerging market at the international level with a change of their current practice of research methodologies most of which are not recognized at the modern world scientific community, regulatory authorities and market. Focusing this a strong attitude and procedure change in research activities at BMARI is mandatory, particularly incorporating recognized systems of scientific procedure for Ayurveda and traditional medicine research.

Major Areas BMARI Can Focus to Deliver Commercial Outcomes to Local Market

- i. At present it is very difficult to identify products/services developed by BMARI available at the local market also, but there is an increasing demand for alternative treatments and therapies particular among tourist which can be focused to develop their own arm targeting this segment in collaboration with Sri Lanka tourist board.
- ii. BMARI should have much strong collaboration with Ayurveda drug manufacturing cooperation to introduce new products such as supplements, cosmetics and nutraceuticals other than conventional Ayurveda drugs.
- iii. Increasing demand for raw materials (medicinal plants) needs to be addressed by BMARI in collaboration with other line ministries such as agriculture as they have good experts on medicinal plant botany and good medicinal plant garden. These need to be converted to commercial operations.

Major Area BMARI Can Focus to Deliver to the International Market

- i. is Herbal Pharmaceuticals, a major demanding product segment that BMARI can focus to approach. At present Chinese TCM and Indian Ayurveda based products are dominating at the international market. Our Ayurvedic or traditional medicines in the current form cannot reach this market, BMARI in collaboration with other institutions such as ITI, SLINTEC, IFS, MRI should rapidly carry out development studies to upgrade and reformulate selected products to meet international specifications. Registration in respective authorities in USA and EU will also be in focus when designing research projects for the development of herbal pharmaceuticals.
- ii. Herbal Functional Foods and Dietary Supplements; This segment can be reached comparatively easier than herbal pharmaceuticals as regulatory requirements are less stringent. BMARI needs to focus new research approaches other than their conventional drug studies to develop concepts on herbal functional foods based on Ayurveda and traditional medicine knowledge.
- iii. Herbal Beauty Products; This sector has huge commercial potential even at the local market but no strategies have been developed to fulfill these demands.

Potentials of BMARI to Deliver Commercial Outcomes

- BMARI is the only government Research Institute dedicated to Research and development in areas of Ayurveda and traditional systems of medicines with all basic physical facilities including a dedicated hospital for clinical trials.
- ii. Qualified and trained Ayurveda doctors and involvement of traditional practitioners
- iii. Access to valuable traditional knowledge in Ola leaves book in BMARI Ola leaves library.
- iv. Modern analytical chemistry and biotechnology laboratory facilities available.
- v. Herbal garden and medicinal plant botanists available

Limitations of BMARI in delivering commercial outcomes targeting wider market including international market

- i. Inappropriate attitudes regarding research approaches in Ayurveda and traditional systems of medicines.
- ii. Unconducive system and micro-environment for novel commercial product/services-oriented research
- iii. Lack of focus on commercially oriented R&D outputs
- iv. Lack of adherence to the internationally accepted procedure in research and development particularly clinical studies.
- v. Very poor collaboration with other local institutions.
- vi. Almost no research collaboration with international agencies.
- vii. Logistic limitation for joint or collaborative research and development activities with the private sector

Insufficient awareness on modernizations concepts and market approaches of the herbal and alternative medicine sector.

7. **RECOMMENDATIONS**

BMARI is the only government research institute that is fully dedicated to Research Development and Innovations (RDI) in the areas of Ayurveda and other traditional systems of medicines in the country with a significant and very high potential to be among leading RDI institutions that can markedly contribute to the national economic development and social wellbeing. However, when elevating BMARI to its potential heights, significant improvements and adjustments in many segments are essential. Being a research institution, the institute should pay more attention to research and development rather than engage in routing standardization and quality control of the ayurvedic formulations. Researching on Ayurveda and Sri Lankan traditional medicine formulations should involve an integrated research team which consists of Botanists to identification and authentication the medicinal herbs used in the formulations and Chemists, Pharmacists and Biochemists to study chemical constituents, any acute / chronic toxic materials, formulations and improvements to be done for the formulations, to do the invivo activity and toxicity using animal models and finally Clinicians for evaluating the claimed efficacy of the formulations and side effects of the medicine. There are no such arrangements for integrated research at the moment. Based on the findings of this review, the review panel would like to suggest the following recommendations targeting the upliftment of BMARI's status, performance and prospect.

1. Providing autonomy to BMARI

It was evident from the review that the operations and performances of the institute have been significantly hampered mainly due to the lack of authority and power vested on the administrative position of the institute. Therefore, it is recommended to establish a board of management/governing council with a composition of relevant ministerial secretaries, eminent scholars in the field and certified practitioners in the country. The Director should directly report to the board of management/governing council.

2. Institutional policies and practices

As identified during the review, BMARI is an institute with a huge potential to be a key role player in national economic development programs. However, lack of policy directions in the sector at the national level and even within the institute, the focus of the institutional activities has been greatly scattered during the past hindering much of potential contribution. Therefore, the review panel would strongly propose a comprehensive sector review at the national level even with a review of the current act and subsequent policy formulation. Meantime Research Development and Innovation Policy (RDIP) for BMARI also should be formulated aligned with that of national policy. The BIJMARI does not have an organogram or clear structure of their employees. The position of senior scientist has never been filled. Immediately the institute should create four positions to lead the four divisions Pharmaceutical botany, Pharmaceutical chemistry & medicinal drug quality control division, Literary research division and Project division and also uplift the duties and the responsibilities of the two CMO. These six positions should not be on a rotation basis. This will immensely help to build up the research culture in the institution.

3. Financial Independence

This institute is totally dependent on Government of Sri Lanka (GoSL) Funds / Budget allocations. GoSL allocates the entire Indigenous Medical sector 1% of Health Budget and it is not defined clearly to what amount each indigenous institute get along a given financial year. It was also not identified the priority of the institutes with regard to the distribution of allocation. As there is no clear amount of allocation for the institute, they further stagnated without an annual action plan. Also, there is no other funding agencies (WHO/WB/ADB) associated with the functions of BMARI. This is a serious setback and a major cause for poor performance of the institute. Therefore, the review panel suggests establishing a separate institutional Finance Division with Director / Finance (or Accountant) to secure the annual budget directly from the treasury.

4. Corporate Plan

It is strongly proposed to initiate a proper program for the formulation of a corporate plan for BMARI with a strategic and time-bound action plan as early as possible in consultation with divisional levels and direct stakeholders. BMARI may seek assistance from relevant institutes or professionals in this regard. Further, it is important to establish a procedure to ensure proper contribution and involvement of the staff at all levels including clinical and hospital staff for the development of an appropriate action plan.

5. Planning and implementation unit

During the review, the panel found gaps in the planning and implementation activities of the institute. Thus, the panel would recommend the establishment of a central research planning and implementation unit at BMARI. The BMARI may seek assistance from the National Planning Department (NPD) for this establishment. The said unit should consist of experienced scientists, a team of experts in the planning of infrastructure and finance, forecasting and guiding research and development projects.

6. Monitoring and evaluation

During the reviewing of the monitoring, evaluation and reporting procedures adopted by the Institute, the review panel observed that the functions of BMARI were not monitored or evaluated with proper monitoring tools. Even much weak management of organizational assets viz: herbal garden and building management were observed during the visit. Therefore, it is recommended to initiate the monitoring and evaluation process for the administrative, financial, clinical, Research and Development activities. It should be conducted regularly using accepted tools.

7. Recruitment of staff to BMARI

Under Human Resource Management, the team assessed the availability of an adequate number of qualified staff and effective management of human resources in the institute. Based on the assessment conducted, the panel recommends the Director should be preferably from the Ayurveda sector with strong research background. The current rotation of staff from the Department of Ayurveda should be restricted and permanent scientists should be appointed together with sufficient number of technical officers. The number of scientific staff at BMRI is grossly inadequate for the smooth functioning of the activities planned. Though the cadre provisions have been increased yearly the most of the key positions were filled using the rotation staff within the ayurvedic department. The current number of technical staff and the expected numbers are given below.

Staff category	2016		2017		2018	2018	
	Appr Actua	oved al	Approved	Actual	Approved	Actual	
Senior level	57	35	67	43	77	53	
Tertiary level	40	15	23	01	23	01	
Secondary	60	18	84	39	84	39	
level	104	80	104	79	104	79	
Primary level Total	261	148	278	162	288	172	

Source: Annual Performance Reports of the Department of Ayurveda

8. Integrated research teams

Herbal drugs quality control and standardization is technically a complicated process which requires a range of advance analytical tool and techniques as most of the ayurvedic formulations are mixtures of several different plant materials, minerals and/or animal products. As herbal drug quality control and standardization are one major RDI area of BMARI, a multidisciplinary approach with the involvement of plant scientists, chemists, pharmacists, and clinicians should be encouraged to achieve the objective. The BMARI provides the routing service for identification and authentication of raw materials used for different formulations at the Ayurvedic co-operation. Less than ten animal studies and efficacy of traditional and ayurvedic research have been conducted with the collaboration of different institutions. (ANNEX 1) collaborative research projects with the private sector are almost none. The institute should take immediate action to conduct research on the native and Ayurveda formulae. Since there is a belief / myth that the ayurvedic formulations are hepatotoxic and nephrotoxic, the BMARI should initiative to conduct such research to investigate the herbal formulations for their respective toxicities. However, the number of research and the identification and authentication of raw materials, we strongly recommend the institute should formulate research teams comprise of all the relevant scientists to embark on this line. One of the major draw-back for not having a research culture at the BMARI is the unavailability of Senior scientist to head the four units given below

i Pharmaceutical botany

- ii. Pharmaceutical chemistry & medicinal drug quality control division
- iii. Literary research division and
- iv. Project division

Currently, these positions are not filled and look after by senior medical officers who are on a rotation basis from the Ayurvedic department. And also, the hierarchy of this position is not depicted in the draft organogram of the institute. We recommend the senior scientist to head these four units should have relevant basic degree with post-graduate degrees with a proven research background.

9. Clinical and Management protocols

The review panel was unable to come across the protocols and guidelines in each unit. It is recommended to develop / revise protocols and guidelines for each unit and made them available for clinical and research work in each section. It was revealed that the clinical research has not been coordinated well. The CMOs at the hospital and OPD should be a senior ayurvedic physicians with postgraduate qualifications in clinical research. These two positions should be made permeant. The panel strongly recommend to conduct real clinical trials on established ayurvedic and native medicine formulations to establish its clinical efficacy. At the moment only special clinics are being conducted but not clinical trials. (ANNEX 1)

10. Annual conference and institutional review meetings

As identified by the panel, managing information dissemination by the institute has to be strengthened. At the same time, BMARI do not follow a systematic way of disseminating the research data, through an annual research conference or annual research journal. Therefore, it was strongly proposed to initiate those activities for the motivation of researchers. Annual institutional performance review meetings and management meetings with stakeholders need to be regularized to get the funding opportunities with evidence of performance. The establishment of an International Research Collaboration unit is a must as there is an urgent need to start benchmarking global experiences and knowledge sharing with stakeholders and other organizations.

11. Ethics Review Committee (ERC)

In the review, the panel observed the absence of ERC within the BMARI and difficulties in getting ethical clearance for RDI projects which were conducted at BMARI. Therefore, to enhance the quality and quantity of clinical research at BMARI and enabling them to publish in reputed peer-review journals, the panel strongly recommends establishing an Institutional Research Ethics Review Committee with the approval of the Ministry. Further, it is important to form a unit or a special committee to handle related legal matters including MOU, agreements and intellectual property rights.

12. An Audit System for Administrative, Operational and Research Activities

The panel did not observe any auditing systems at BMARI for assessment and improvement, therefore it is recommended to establish an auditing system for the research projects, finance management and all the relevant functions carried out in BMARI.

13. Quality and Safety unit

Need the biosafety laboratory facilities to function the microbiology section and to conduct the testing. Quality assurance needs to be established in all the activities and tests conducted. They should expand the current quality-control tests and standardization of drugs and start new projects with the Private sector. Like the National Medicines Regulatory Authority (NMRA) where they control allopathic medicine, the BMARI as the sole research institute for traditional medicine should do the quality analysis on available drug formulations in the country.

14. Restructuring the BMARI

The Sri Lankan Ayurvedic tradition is a mixture of the Sinhala traditional medicine, Ayurveda and Siddha systems of India, Unani medicine of Greece through the Arabs, and most importantly, the Desheeya Chikitsa, which is the indigenous medicine of Sri Lanka. During the review on planning S & T programs and setting priorities, Panel observed several gaps in developing the sector and especially in promoting local wisdom relevant to the sector. Thus, the Team would like to propose to rename the institutional name considering the national identity of indigenous Medicine. Further to revisit the existing name of the institution as Ayurveda does not cover all the traditional /

indigenous medicine systems practiced in the country. Since the government has pledged to develop the traditional medical system by establishing a separate university etc. in 'National Policy Framework 2020-2025' 'Vistas of Prosperity and Splendour' (**annex 4**), it would be recommended to restructure the institution and affiliate the BMARI to the University as its research counterpart.

ANNEX-1

කාර්ය සාධන වාර්තාව செயலாற்று அறிக்கை PERFORMANCE REPORT

2018



ආයුර්වේද දෙපාර්තමේන්තුව දුාධා්රිඛනු නිකඤාස්සභාඛ DEPARTMENT OF AYURVEDA Sections relevant to BMARI are given below.

Organograme of the ayurvedic Department. BMARI has not developed its own Organogram.

Page 3 of performance report 2018.



Evaluation of Annual Action Plan – 2018

Bandaranayeke Memoriyal Ayurvedic Research Institute

1 - 2507 40.Mn

Pages 50-55

Object code	Activity/Project	Expected output/outcome	Expenditure as at end of year 2018 (LKR)Mn	Physical Progress
4-2507 a)	Assessing the toxicity effect of common herbal formulas used in prameha.(Rats study) Collaboration with university of Ruhuna.	completed Research	1980.00	completed Research
b)	Assessing the toxicity and therapeutic effects of common herbal formulas used in prameha. (Diabetic induced mice study) Rajarata	Stand to induce the mice pre trials done. Now one large group is started to induce the diabetic melliyns.	175,000.00	Still research in ongoing medicines need to supply more chemicals of streptozotocin need to continues the research still research grant is current research activities.
c)	Assessing the Anti-glycation activity of commonly used Ayurveda formula for prameha. Collaboration with university of Rajarata		69,866.00	Still not complete the research. After done this research can be fine the hoe these drugs active for the glycation.(Still research is ongoing. Work shops have be conducted.)
d)	Assessing the anti-oxidant activity and drug standardization of commonly used Ayurveda formula for prameha Collaboration with university of Peradeniya		35,000.00	Still research is ongoing. Work shops have be conducted. Chemical need in internally

2.10

e)	1.ඔසු උයන සංවර්ධනය		46,250.00	අවශා පුතිපාදන හා
				පුමාණවත් සේවක
				සංඛාාවක් නොමැති වීම
				හේතුවෙන් අවශා ඉලක්ක
				කරා ළහා විය නොහැක.
				(10%)
	2. The investigation of	Sida(බැබිළ) විශේෂ		35%
	morphoanatom ical variation	7 ක් නිවැරදිව හදුනා		
	recorded in sri lanka	ගැනීම		
	3.මාතව උද්භිද විදාහා සමීක්ෂණය			
	දොළුකන්ද රක්ෂිතය			25%
		තරපනයට ලක්ව		
		ඇති ඖෂධය ශාක		
	4 ເໝາຫ ຫຼາ ອີອັສອາກາສາລິ ເລ ເລເຫຼ	සංටක්ෂණය		
	යොදා ගන්නා අමදවා	ශාක විශේෂ සංඛාාාව		
		155ක් නිදර්ශක		
		සකසා ඇත.		
		පුමිතියෙන් යුතු		
		ඖෂධ		
		නිෂ්පාදනය.(2018		25%
		අවසන් භාගය)		
	5 man octant moderate			
	(කැතියික්ක ශාකය කාලස්ථ ගණය			
	(කැපයක්)	අධාායනය අවසන්		
				60%
				2020 කියාකාරි සැලැස්මට
				අනුව පර්යේෂණ කාර්යයන්
				කිරීමට නොහැකි විය.
				non oting Smarter
				පිටක් රෝපිණි උද්ධාගාටයේ බංදු සම්කරණ යන්තය හා
				Laminar air flow (stars
				අකුය ටම හෙතුවෙන)

f)	1. Pathology laboratory	10,687 (Report)	-	1.ISE Smart light අළුත් වැඩියා කිරීම හා සේවා ගිවිසුම් ඇති කිරිම.
	2. Investigation			2.Binocular Mrorscope ඇණවුම් කර ලබා දීම. 3.24 buckets centrifuge ඇණවුම් කිරීම. 4.Immunology Analyzer BS – 200, BC -5300, Incubator ,Hot air oven, ultra pure system, water distillation unit වලට 2019 වර්ෂයේ සේවා ගිවිසුම් ලබා දීම.
g)	සාහිතා පර්යේෂන * 564;363;139;369 - 2016 අවසාන කාර්තුවේ සිට *489;574;06;35 - 2017/2018 දරණ පුස්කොළ පොත් අනුලේහණය කිරීම. ➤ 363 පුස්කොළ ගුන්ථයේ සඳහන් වටිකා පුකරණයේ සඳහන් වටිකා පුකරණයේ සඳහන් වෙටිකා පුකරණයේ පලාත් නොවන ගුලි කල්ක පිළිබඳ සාහිතා විමර්ශනය ➤ 564 පුස්කොළ පොතෙහි පමණක් සඳහන් චුර්ණ පිළිබඳ සාහිතා විමර්ෂණය	ඉපැරණි වෙදදුරු ඔසු නැණ ගුන්ථය පුකාශනය සඳහා සුදානම් කිරීම.	-	65%

h)	Conducting new research standardization of Pippalydsawaya – Poly herbal drug	-	ඖෂධය සෑදීම සඳහා අවශා අමු දුවාා (ශාක) දිවයිනේ විවිධ පුදේශ වලින් රැස් කිරීම. ඒ සඳහා අවශා අනෙකුත් නිෂ්පාදන උපකරණ සඳහා මිළ ගණන් කැඳවීමට කටයුතු සිදු කරමින් පවතී.
i)	Purchase of Laboratory equipment for Standardization	-	උපකරණ ඉල්ලුම් කර ඇත. මේ වන විට උපකරණ මිළදී ගැනීම සදහා වන තාක්ෂණික ඇගයීම් කමිටුවේ නිර්දේශය සදහා යොමු කර ඇත.
j)	Purchase of chemicals and standards for research	-	රසායන දුවා ලැයිස්තුවක් ඉල්ලුම් කර ඇත. MS-MIS වාහාපෘතිය මහින් එම රසායන දුවා වලින් කොටසක් (ඒ හරහා ලබා ගත හැකි) ලබන වසර සඳහා ඉල්ලුම් කර ඊට ඇතුළත් කර ඇත. අනෙක් රසායන දුවා සඳහා තාක්ෂණික ඇගයීම් කමිටුවේ නිර්දේශය සඳහා ඉදිරිපත් කර ඇත.
k)	Purchase of glassware for research	-	ඉල්ලුම් කර ඇත. සැපයුම් අංශයේ තාක්ෂණික ඇගයීම් කමිටුවේ නිර්දේශ සදහා ඉදිරිපත් කර ඇත.
l) m)	Purchase of for high tech equipments such as HPLC/ICP ms GC-MS microwave digester.	-	ICP-MS උපකරණය සඳහා අවශා Argan gas සිලින්ඩර් 8 නැවත පිරවීම සඳහා ඉල්ලා ඇත. නමුත් මේ වන විට එය සැපයුම් අංශයේ අදාළ කටයුතු සඳහා යොමු කර ඇති බව දන්වා ඇත.
m)	laboratory equipment	-	HPLC, ICP-IVIS හා Microwave digester උපකරණ සඳහා වාර්ෂික

n)	Purchase of spare parts for high tech equipments such as HPLC,ICP-MS ,GS-MS Microwave digester		-	නඩත්තු ගිවිසුම ඇති කර ගත්තා ලදී. *Nitrogen Analyzer ,Freeze clryer micro balance, Uv spectrophotometer හා rotary evaporator යන උපකරණ 5 සඳහා ද වාර්ෂික නඩත්තු ගිවිසුම ඇති කර ගැනීම සඳහා අවශා ලියකියවිලි දෙපාර්තමෙන්තුව වෙත යොමු කර ඇති. මේ වන විට එහි අනුමැතිය සඳහා පුසම්පාදන කමිටුව වෙත ඉදිරිපත් කර ඇති බව දැනුම දී ඇත. *ICP-MS උපකරණයේ අඑත් වැඩියා කටයුතු සිදු කර ගැනීම. අමතර උපාංග ලැයිස්තුවක් ඉල්ලා ඇත. මේ වන විට එම ලැයිස්තුව තාක්ෂණික ඇගයීම කමිටුවේ වාර්තාව හා නිර්දේශ සඳහා යොමු කර ඇත.
				ක් මිලදී ගැනීම සඳහා අනුමැතිය ලබා දී ඇත.
o)	බාහිර රෝගී අංශයේ වැසිකිළි පද්ධතිය නවීකරණය කිරීම.	-	1,279,783.25	-
p)	වාට්ටු අංක 04 වැඩි දියුණුවට කොටස් වෙන් කිරීම.	-	288,510.00	-
	ස්කෑන් යන්තුය ස්ථාන ගත කිරීම.			
q)	බාහිරාංශයේ අනතුරු දායක තාප්ප කොටස අළුත් වැඩියාව.	-	615,352.10	-
r)	බාහිර රෝගි අංශයේ ආපනශාලා ගොඩනැගිල්ල අළුත් වැඩියාව.	-	3,413,096.50	-

s)	වැසිකිළි වළවල් කඩා ඉවත් කර පස් පුරවා නැවත සෑදීම.	-	7,287,900.00	-
	අපවිතු ජල ටැංකි හා නල නැවත සෑදීම.			

2.13.6 ඔසු පැළ නිෂ්පාදනය හා අලෙවි කාර්යයන්

අනු		නිෂ්පාදනය කළ	පැළ අලෙවි ආදායම		
අංකය	ඔසු උයන	පැළ සංඛාාව	පැළ පුමාණය	වටිනාකම (රු.)	
1.	පින්නදුව	16,379	7,488	373,895.00	
2.	පට්ටිපොළ	3,661	1,219	52,260.00	
3.	පල්ලෙකැලේ	18,929	15,486	49,070.00	
4.	හල්දුම්මුල්ල	28,388	11,834	459,200.00	
5.	නාවින්න	5,533	7,899	353,830.00	
6. ගිරාඳුරුකෝට්ටේ		31,174	2,495	86,840.00	
	එකතුව	104,064	46,421	1,816,095.00	

2.13.7 නිෂ්පාදනය කළ රෝපණ දුවා.

	නාවින්න ඔසු උයන							
				-			-	
1.	කිරිපළු	-		-	-			ඔක්තෝම්බර් -
								නොවැම්බර්
2.	නා	-		-	-	\checkmark		සැප්තැම්බර්
3.	මාද∘	-		-	-			සැප්තැම්බර් -
								ඔක්තෝම්බර්
4.	බුළු	-	\checkmark	-	-	\checkmark		මාර්තු - මැයි
5.	ලදාඹ	-	V	-	-			ජූනි - අගෝස්තු
6.	මූණමල්	-	\checkmark	-	-	\checkmark		ජූනි - ජූලි
7.	වේල	-		-	-			ୁୁଞ

2.13.9 ඔසු උයන් වලින් නිකුත් කර ඇති / අලෙවි කර ඇති අමුදවා

	නාවන්න				
1.	අරඑ	-	\checkmark	29.7 Kg	
2.	බුළු	-	\checkmark	210 Kg	නාවින්න ආයුර්වේද ඖෂධ නිෂපාදනාගාරයට නොමිලේ
3.	නෙල්ලි	-	\checkmark	2.650Kg	සැපයිම
4.	ලදා ඔ	\checkmark		12 Kg	

2.13.10 ඔසු උයන් මහින් ලබා දෙන සේවාවන්

අ) පුකාශන හා පොත්පත්

1

අනු අංකය	ඔසු උයන	පුමාණය	ආදායම
1.	පින්නදූව	110	1100.00
2.	පල්ලෙකැලේ	23	230.00
3.	හල්දුම්මුල්ල	80	800.00
4.	නාවන්න	31	310.00
	එකතුව	244	2440.00

2.18 නොමිලේ පැළ/ අමුදුවා නිකුත් කිරීම් පොත් අගය

අනු අංකය	ඔසු උයන	නොමිලේ පැළ නිකුත් කිරීම්		ඔසු උයන් අතර පැළ හුවමාරුව	
		පුමාණය	වටිනාකම (රු.)	පුමාණය	වටිනාකම (රු.)
1	පින්නදුව	36,623	109,930.00	-	-
2	පට්ටිපොළ	2,031	68,800.00	1,381	44,930.00
3	පල්ලෙකැලේ	7,631	2,35,110.00	-	-
4	ගිරාදුරුකෝට්ටේ	6,079	195,450.00	-	-
5	නාවන්න	6,258	202,970.00	-	-
6	හල්දුම්මුල්ල	8,047	243,310.00	-	-
	එකතුව	66,669	1,055,570.00	1,381	44,930.00

නාවිත්ත ඔසු උයන			
BACC වාාාපෘති	107	11,050.00	
ඔසු ගොවි වැඩසටහන	86	3,560.00	

2.8.2 පුමිතිකරණවස්වා (page 57)

		වස්වාවලබා දුන්ආයතන ය				
වස්	වාසැපයුක්වේනුය					
1.	වියළිඖෂධ්මිලදීගැනීම - 2018	තාක්ෂණික ඇගයීේකමි ටුව				
වර්ෂ	යසඳහාවනතාක්ෂණිකඇගයී ේකමිටුවවිසින්වයාමු	anghale learthal a l				
කරප	තලදසාේපලසඳහාඅදාළපුමිතිවාර්තාලබාදීම.					
2.	ගබඩාවහරහාඑවනලදඅමුදුවයපරීක්ෂාව.	ගබඩාව ආයුර්වේදප				
		ර්වේෂණාය තනය				
3.	ඖෂධිනිේපාදනාගාරයහරහාඑවනලදනිමිඖෂධ්පරී ක්ෂාව.	ඖෂධිනි ේපාදනාගා රය ආයුර්වේදප ර්වේෂණාය තනය				
4.	ශිලීයඅංශයමගින්වයාමුකරනලදසාේපලයක්සඳහාපරී	ශිලීයඅංශ ය, ආයුර්වේද				
ක්ෂ	ණවාර්තාලබාදීම.(2018.03.19)	වදපාර්තවේ න්ුව				
5.	ඖෂධ්සංස්ථාවමහින්වයාමුකරනලදපැහිරිවතලසාේපල	ඖෂධ්සං ස්ථාව, නාවින්න				
ිපය	ක්සඳහාතේේවවාර්තාලබාදීම.					
එමඅ	ායතන වේ ම වර් ින්වකාකන ට් ඔයිලසා ේ පලයක් සඳහා ත					
ේ ෙ	්වවාර්තාවක්ලබාදීම.					
1.	ව <i>ද්</i> ශීයව වදය විදයා ආයතනය විසින් එම ආයතන වේ උපා	වද්ශියවව දයවිදයාආය තනය,				
ධිඅෙ	ධිඅවේක්ෂකයකුවේපර්වේෂණඖෂධාාක්සඳහාTLCවා					
ර්තාව	Dක්ලබාදීම.(2018.09.25)					

2.9.2 ඖෂධීයඅමුදුවයපරික්ෂාව (Page 62)

පර්වේෂණකාර්යය/පරික්ෂාකළඅමුදුවය	වස්වාවලබාදුන්ආයතනය		
	අභයන්තර	බාහිර	
01. අමුදුවය 37	මධුවේහසායනය	-	
02. අමුදුවය 15	පිළිකාසායනය	-	
03. අමුදුවය 53	ස හං ආ ්මසුප <u>ා</u> ස	-	
04. අමුදුවය 67	ගබඩාව	-	
05. අමුදුවය 03		-	
06. විවශ්ෂ 12	-	Kothalawala Academy	
07. විවශ්ෂ 05	-	Medical Faculty - Kelaniya	
08. විවශ්ෂ 01	-	National Science Foundation	
09. විවශ්ෂ 02	-	Wickramarachchi - Gampaha	
10. විවශ්ෂ 10	-	Horizon Campus	
11. විවශ්ෂ 08	-	University of Colombo	
12. විවශ්ෂ 03	-	University of Sri Jayawardhanapura	
13. විවශ්ෂ 63	-	Venture Maric International (pvt)Ltd.	

Annex-2.1







Meeting with senior officers of BMARI, at the BMARI Navinna

Annex-2.2



Meeting with senior officers of BMARI, at the BMARI Navinna

(Annex-3)

Stakeholders /collaborators for BMARI invited for the stake holders meeting

- 1. Commissioner, Department of Ayurveda
- 2. Ayurvedic Medical Council, Chair or Nominee
- 3. Ayurvedic Research Committee Chair or Nominee,
- 4. Ayurveda Formulary Committee, Chair or Nominee
- 5. Provincial Commissioner of Ayurveda, Western province
- 6. Institute of Indigenous Medicine University of Colombo, Director or Nominee
- 7. GampahaWickramarachchi Institute, University of Kalaniya, Director or Nominee
- 8. Post Graduate Institute of Indigenous Medicine, University of Colombo, Director or Nominee
- 9. Siddha Institute, University of Jaffna, Director or Nominee
- 10. Research Institutes (MRI), Vetenary Research Institute Gannoruwa, ITI) Director or Nominee
- 11. Ministries (Ministry of Agriculture, Ministry of Science and Technology, Secretary or Nominee
- 12. Ministry of planning and National policy, Secretary or Nominee
- 13. National Science Foundation NSF, CEO, Nominee
- 14. Ayurvedic Drug manufactures (Link, Sidhalepa, Nuwaraosu, Baraka etc.)
- 15. Ayurveda/Traditional physicians
- 16. General public and Interested Groups, NGOs- WHO

(Annex-3)

1

පාර්ශවකරුවන්ත සඳහා පුශ්නාවලිය Questionnaire for stakeholders 1. පාර්ශවකරුවන්ගේආයතනය / ඒජන්ිය / ගෙපාර්තගේන්ුව / පීඨය / පුද්ගලයාගේ නම: Name of the stakeholder institute/ Agency/ Department/ Faculty/ individual: 2. ඔබ/ ඔබගේ ආයතනය ිදූ කරනා කාර්යයන්: උො: පර්ගේෂණ කටයූ / උෙයාන විෙයාව / උද්භිද රසායන විෙයාව / ඖෂධ ිෂ්පාදනය යනාදිය. Assigned involvement: Eg: Research work/ Horticulture/ plant chemistry / drug Development etc. 3. නම:..... Name: සේබන්ධතාගතාරුරු: දූරකථන / විට ්ත් තැපැල: Contact Details: phone/email: දිනය පුද්ගලයාගේ අත්සන / නිගයෝජිතයා ${f I}.$ බණ්ඩාරනායක අනුස්මරණ ආයුර්ගේෙ පර්ගේෂණ ආයතනය (${f BMARI}$) සමහ ඔගේ/ ඔබගේ ආයතනගේඇති සේබන්ධතාවය කුමක්ෙ? What is your involvement with the Bandaranaike Memorial Ayurveda Research Institute (BMARI) II. ඔබ BMARI සමහ ගකාපමණ කාලයක් වැඩ කරනවාෛ?: Since how long you are working with BMARI

III. ඔබ කරන වැඩ සමහ BMARI හි තත්ත්වය විස්තර කරන්ගන් ගකගස්ෙ? (උො: ඖෂධ නිෂප අමුදුවය සැපයීම / පර්ගේෂණ / ඖෂධ සංදයෝජන සැකසීම)

Annexure-4

The National Policy Framework Vistas of Prosperity and Splendour

"The National Policy Framework Vistas of Prosperity and Splendour" published by the Ministry of Finance, Sri Lanka has identified 10 key sectorial policies that includes A Productive Citizen and a Happy Family covering Indigenous and Ayurveda system as a sub- sector. The subsector Policy Component is to uplift these systems through a more scientific and modern approach. Two of the activities are directly relevant to the activities of BMARI Viz. Encourage research on indigenous drugs and treatment facilities and establish mechanism to register them, steps taken to update Ayurveda pharmacopeia. The BMARI can play

A major role to realize the above tasks.

Sub- Sector	Sectoral Policies and Policy Component	Strategies	Activities
		Spend entire government funds on health for citizens of Sri Lanka	 Restrict to provide government healthcare facilities on free of charge for foreigners
Indigenous and Ayurveda System	Uplift these systems through a more scientific and modern approach.	Increase annual allocation for Indigenous medicine sector	 Establish a National indigenous Medical council and Sri Lanka Medical Ayurveda Council. In addition, develop a system to register traditional healers (Weda Mahathmayas) as indigenous doctors Provide necessary facilities to improve Ayurveda hospitals to a standard level, provide preventive care facilities and to provide facilities to Ayurveda physicians Encourage research on indigenous drugs and treatment facilities and establish mechanism to register the same. Provide facilities to cultivate all medicinal plants, herbal gardens and provide facilities to manufacture and export herbal cosmetic products Upgrade institute of medicine to a level of Ayurveda University Steps taken to update Ayurveda Pharmacopeia. Develop a mechanism to cater tourists for Ayurveda, Siddha, homeopathy and other traditional treatment methods

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