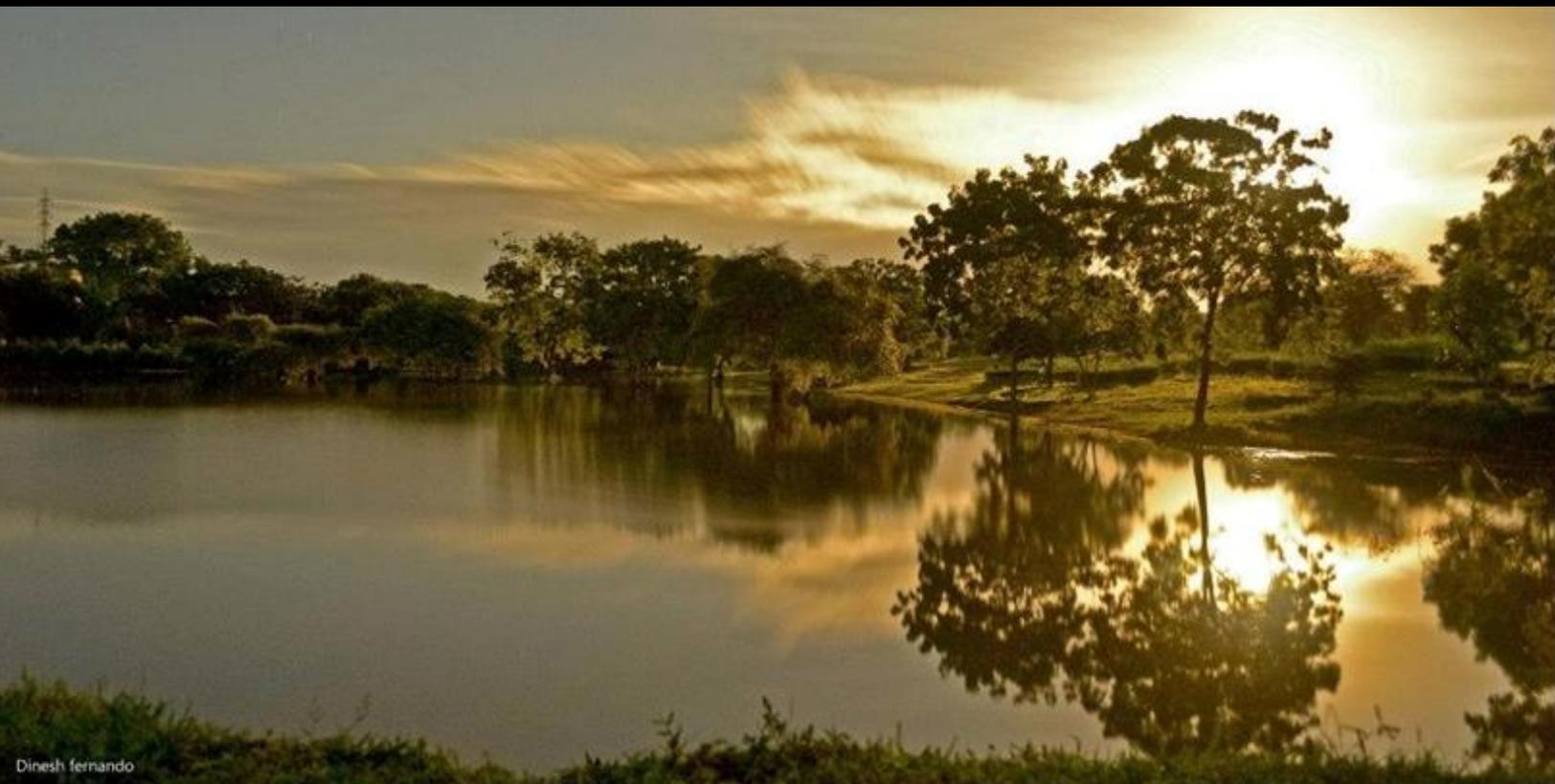




Annual Performance Report

Year 2012



Dinesh fernando



Department of National Botanic Gardens



Department of National Botanic Gardens

Annual Performance Report
Year 2012

Department of National Botanic Gardens

P.O. Box 14, Peradeniya

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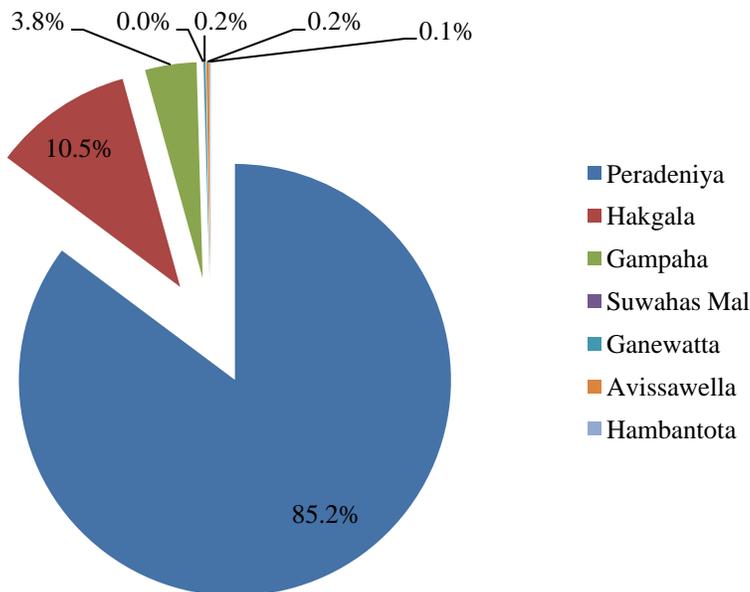
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PERFORMANCE SNAPSHOT

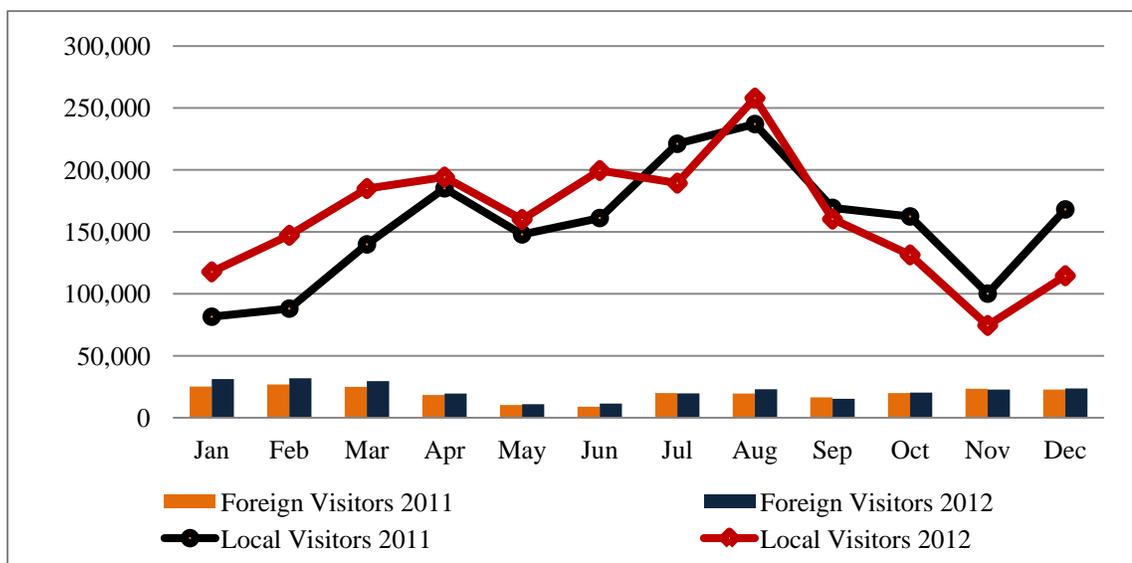
1.1 REVENUE 2012

- The total revenue earned from admission fees, plant sales, and rents etc. in 2012 is Rs. 382.8 Million. It is an 8 % increase of revenue compared to the previous year (Rs. 353.4 Mn).



1.2 VISITOR INFORMATION

- The number of visitors was over 2 million (2,191,459) this year as well. The number of foreign visitors to botanic gardens in 2012 (259,545) shows a 10% increase when compared to the last year (236,763).



1.3 EXPENDITURE 2012

- Development activities of 3 main gardens and other units were carried out as planned and 98% of overall financial performance was achieved.

Description	Net Provision (Rs. Mn.)	Total Expenditure (Rs. Mn.)	Expenditure percentage
Capital Expenditure	327.8	311.5	95%
Recurrent Expenditure	174.8	174.3	100%

1.4 SCIENTIFIC ACTIVITIES

- Scientific activities were expanded as planned and several research programmes related to floriculture development in the country, plant taxonomy and systematics were carried out. Training programmes for different groups of the public, plant explorations and planting programmes were also carried out as planned.

Research programmes carried out (Floriculture Taxonomy, etc...)	14
Research papers published	14
Training of people at gardens	
Bio diversity conservation	523
Plant conservation	1,500
Floriculture	10,578
Landscaping	1,232
Plant systematic and herbarium management	698
3 month Diploma	76
Plant production at gardens	398,566
Plants Sales	202,416
Field explorations	18
New trees added to the Arboreta of the gardens	443
Other programmes	
National Red listing project	Data compilation and species assessments for the preparation of National Red Data Book as well as species assessments for global Red List were carried out in collaboration with Ministry of Environment and the National Red List was published and launched.

International workshops	The Royal Botanic Gardens, Peradeniya hosted an international conference on Restoring Forests in Human Dominated Landscapes of the Wet Evergreen Region, South Asia in collaboration with Yale University, USA.
National workshops	The first national workshop of Sri Lanka Bryophyte Diversity was held at the Royal Botanic Gardens, Peradeniya.
Botanical survey	Plant explorations, collection of plant specimens, mainly threatened plants of dry and wet zone was carried out.
National Symposium on Floriculture	The 5 th National Symposium on Floriculture Research (NaSFloR) was conducted on 17 th December 2012 in collaboration with Council for Agriculture Research Policy (CARP).

INTRODUCTION

2.1 BACKGROUND

All National Botanic Gardens of Sri Lanka are maintained and managed by the Department of National Botanic Gardens. The National Herbarium of the Department of National Botanic Gardens carry out plant authentication work and research programmes in plant taxonomy and other aspects of botanical sciences. The floriculture Research and Development unit focuses on floriculture research, supporting and encouraging viable ventures for floriculture promotion in the country via floriculture development activities through different media/activities/programmes. The Education Centre of Royal Botanic Gardens, Peradeniya offers training and education programmes ranging from one day short term courses to 2 year diploma courses.

A botanic garden by definition is a documented collection of living plants maintained for the purposes of scientific research, conservation and education for interested parties while facilitating the public who visit botanic gardens.

The Royal Botanic Gardens, Peradeniya; Botanic Gardens in Hakgala and Botanic Gardens at Henarathgoda, Gampaha established in the 19th Century by the British are responsible for almost all the plant introductions for economic and environmental development of Sri Lanka. Activities during that period resulted in the development of economic and plantation crops, the emergence of important state departments such as the Forest Department in 1887 and Department of Agriculture in 1912, as well as the institutions for the development of Plantation Crops such and Tea and Rubber.

After establishing the Department of Agriculture in 1912 botanic gardens functioned under it as a division. In 2006 the Department of National Botanic Gardens was established and took over the management of all the National Botanic Gardens. The Department of National Botanic Gardens functioned under the Ministry of Economic Development in the year 2012.

Today the Gardens are acknowledged both nationally and internationally as a centre of excellence for the collection and study of plants – particularly those tropical and endemic to the region of South Asia. The Botanic Gardens of Sri Lanka are well known all over the world and are visited by over 2 million visitors annually.

The Medicinal Plant Garden at Ganewatte established in 1950s coming under the department is responsible for promoting conservation, sustainable use and management of medicinal plants in Sri Lanka. After 130 years (3rd botanic garden was established in 1876 by British) the first botanic garden developed by local experts is being established at Mirijjawila, Hambantota with the objective of ex-situ conservation of dry and arid zone plants while contributing to the economic development of the country by developing

floriculture/herbal industry and ecotourism in the area. Another new botanic garden is being developed in Avissawella for ex-situ conservation of Wet Zone plants.

2.2. VISION

To become the scientifically and aesthetically finest Botanic Gardens in the Tropics by 2016, while conserving plants and contributing to the economic growth of the country

2.3 MISSION

To provide opportunities for the public to study, sustainably conserve, and admire plant resources in natural and manmade environments

2.4 MAIN TASKS

- Planning and implementation of *ex-situ* conservation strategies for the conservation of Sri Lankan plant diversity.
- Carry out activities to disseminate authentic information and technical expertise on plants and plant-related industries of Sri Lanka using educational and communication strategies.
- Conduct diverse research and implement technologies to develop floriculture industry in Sri Lanka.
- Management and Development of National Botanic Gardens at high standards.
- Prepare development plans for the establishment of new botanic gardens in appropriate places.
- Plan and implement research and technical programs needed to popularise amenity Horticulture in Sri Lanka.
- Provide technical advice to conserve Sri Lankan plants of historic importance.
- Maintaining the health of the sacred bo-tree at Anudadhapura.

2.5. INSTITUTES AND UNITS

1. Royal Botanic Gardens, Peradeniya
2. Hakgala Botanic Gardens, Hakgala
3. Henarthgoda Botanic gardens, Gampaha
4. National Herbarium, Peradeniya
5. Medicinal Plant Garden, Ganewatta
6. Dry Zone Botanic Gardens, Mirijjawila, Hambantota (under development)
7. Seethawaka Wet Zone Botanic Gardens, Illukowita, Awissawella (under development)
8. Floriculture Research & Development Unit, Peradeniya
9. Education Centre, Peradeniya
10. President's House Gardens, Colombo
11. President's House Gardens, Kandy
12. President's House Gardens, Nuwara Eliya
13. President's House Gardens, Anuradhapura
14. Temple Trees Gardens, Colombo
15. Prime Minister's Office Gardens, Colombo
16. Prime Minister's Lodge Gardens, Nuwara Eliya
17. Visumpaya, Prime Minister's Lodge Gardens
18. Suwahas Mal Sevana, Colombo
19. Garden Assistant's office, Narahenpita
20. Commonwealth War Graves, Pitakande, Kandy
21. Commonwealth War Graves, Borella
22. Commonwealth War Graves, Jawatte
23. Commonwealth War Graves, Nilaweli, Trincomalee.
24. Haritha Piyasa, Meegallawa (under development)

STAFF DETAILS

Approved cadre : 700

Existing cadre : 661

Out of 661 existing cadre, 545 are permanent and includes 21 staff grade officers, 34 officers of Sri Lanka Technical Service, 3 Graduate Agriculture Monitoring Officers, 22 Graduate Program Assistants and 42 officers of Management Service and 105 gardeners on contract basis. 11 are transferred from Smaurdhi Authority to the Department of National Botanic Gardens pursuant to a cabinet decision in 2007.

3.1 EMPLOYEE PROFILE

Category	Approved Cadre	Actual Cadre
Senior Level	33	16
Tertiary Level	6	5
Secondary Level	145	101
Primary Level	516	423
Transferred from Samurdhi Authority	-	11
Contract Labour	-	105
Total	700	661

3.2. SENIOR STAFF

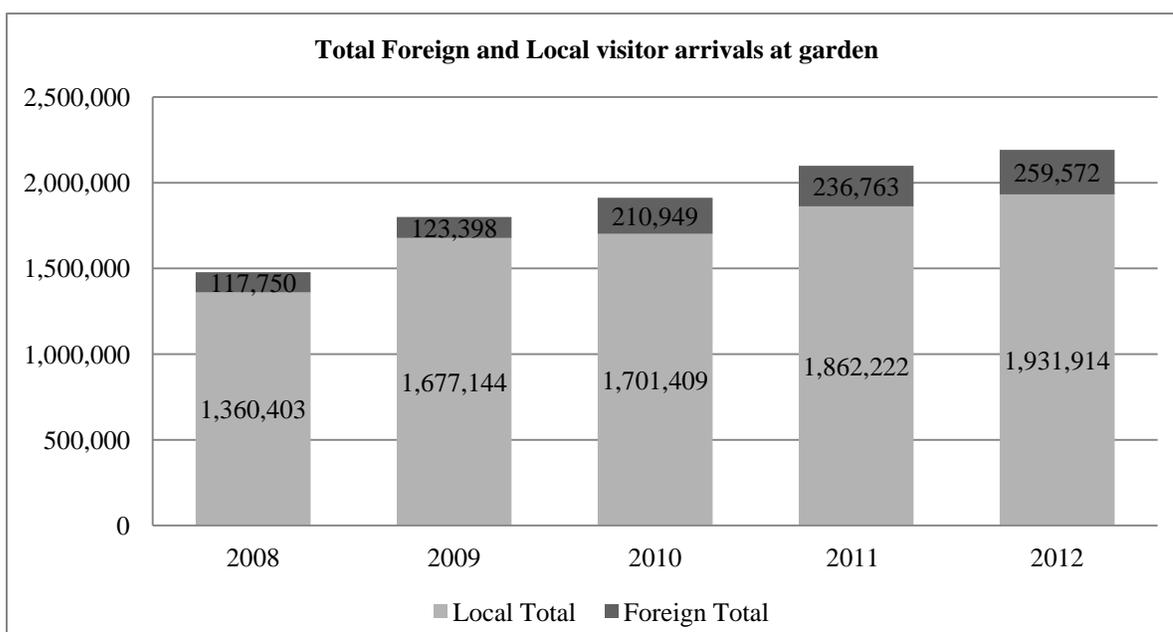
Designation	Name of the Officer
Director General	Dr. D.S.A. Wijesundara
Director (Development)	Mr. D.H.P. Peramunugama
Director (Research and Technology Transfer)	Mr. K.N. Yapa
Director (Administration)	Mrs. I.W.M.C.K. Illangakoon
Chief Accountant	Mr. E.L. Jayawardena
Civil Engineer	Mr. V.A. Bandara

ACHIEVEMENTS

4.1. VISITATIONS

Botanic gardens at Peradeniya, Hakgala and Gampaha were maintained at high standards and 2,191,486 people (1,931,914 local visitors and 259,572 foreigners) visited the botanic gardens this year and this is an increment compared to the last year (2,098,985). The number of foreign visitors to botanic gardens in 2012 (259,572) shows a 10% increase when compared to the last Year (236,763). Numbers of visitations at the gardens are listed below;

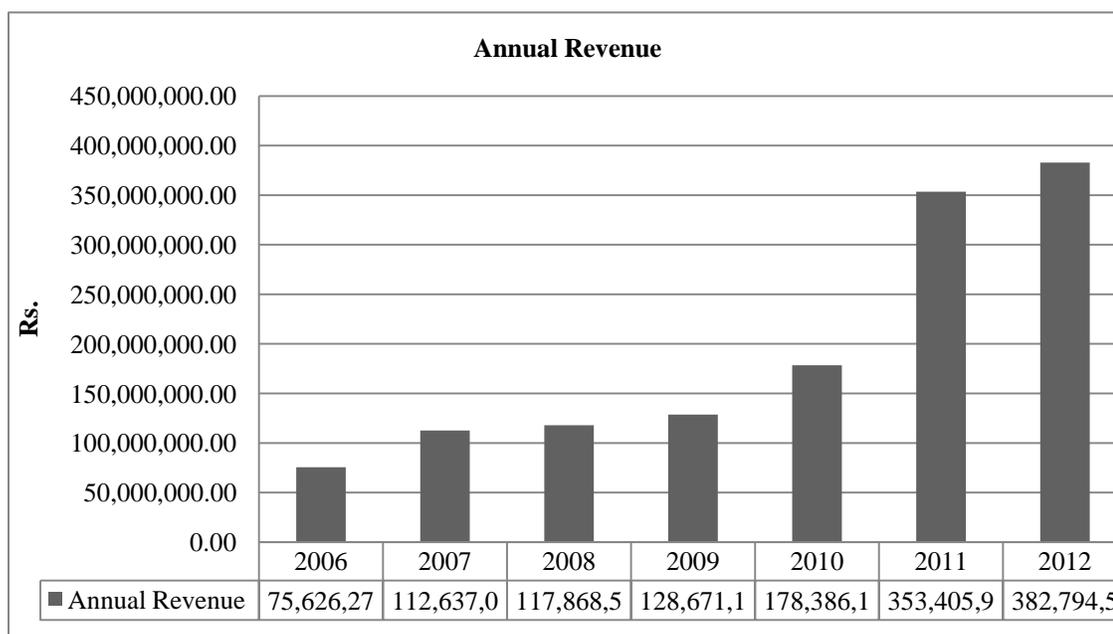
Visitor Category	Peradeniya	Hakgala	Gampaha	Total
Local Adults	868,663	411,334	177,204	1,457,201
Local Children	272,640	168,295	16,439	457,374
Senior Citizens	8,155	8,114	1,070	17,339
Total Local Visitors	1,149,458	587,743	194,713	1,931,914
Foreign Adults	234,316	11,318	240	245,874
Foreign Children	8,991	806	3	9,800
Foreign Students	3,506	392		3,898
Total Foreign Visitors	246,813	12,516	243	259,572
Total No. of Visitors	1,396,271	600,259	194,956	2,191,486



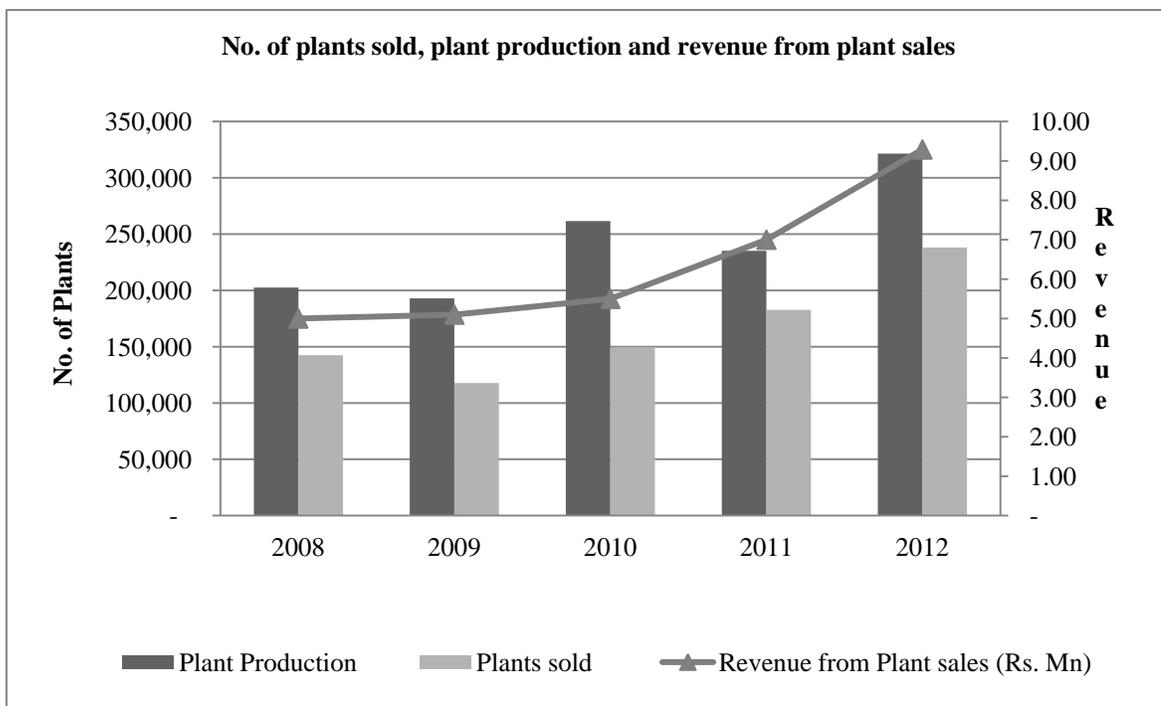
4.2. REVENUE

The total revenue earned from admission fees, plant sales, and rents etc. is Rs. 382.8 Million. It is an 8% increase of revenue compared to the previous year (Rs. 353.4 Mn). The revenue earned from visitors to the gardens is Rs.356.6 Mn. and the revenue earned from other sources (plant sales, Rents, etc.) is Rs.26.2 Mn.

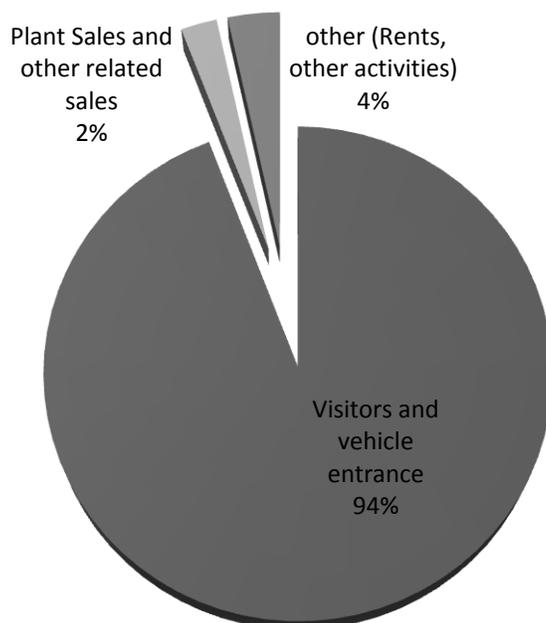
Units	Total Income (Rs.)
Royal Botanic Gardens, Peradeniya	326,220,159.53
Botanic Gardens, Hakgala	40,112,442.40
Botanic Gardens, Gampaha	14,716,622.00
Medicinal Gardens, Ganewatta	583,552.00
Dry Zone Botanic Gardens, Hambantota	294,060.00
“Suwas Mal Sevana” Plant Nursery, Battarmulla	58,310.00
Wet Zone Botanic Gardens, Avissawella	809,400.00
Grand Total	382,794,545.93



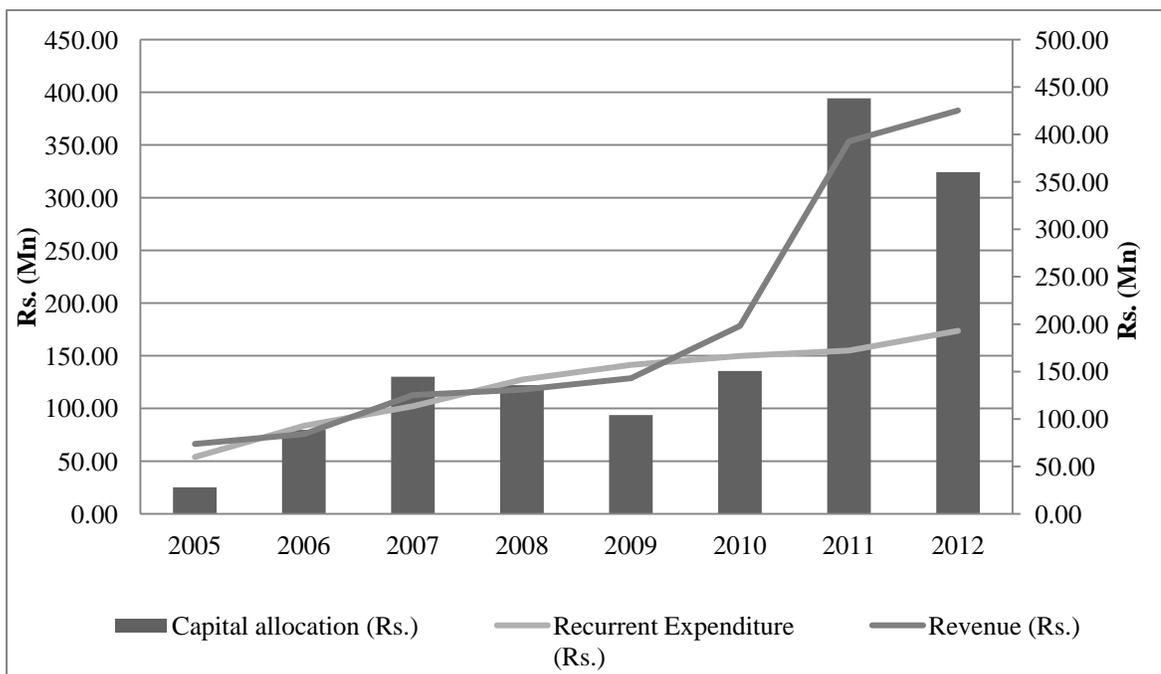
4.3. NUMBER OF PLANTS SOLD AGAINST THE PLANT PRODUCTION AND REVENUE FROM PLANT SALES IN NATIONAL BOTANICAL GARDENS



4.4. PERCENTAGE OF REVENUE EARNED AS AGAINST THE TOTAL REVENUE OF THE DEPARTMENT

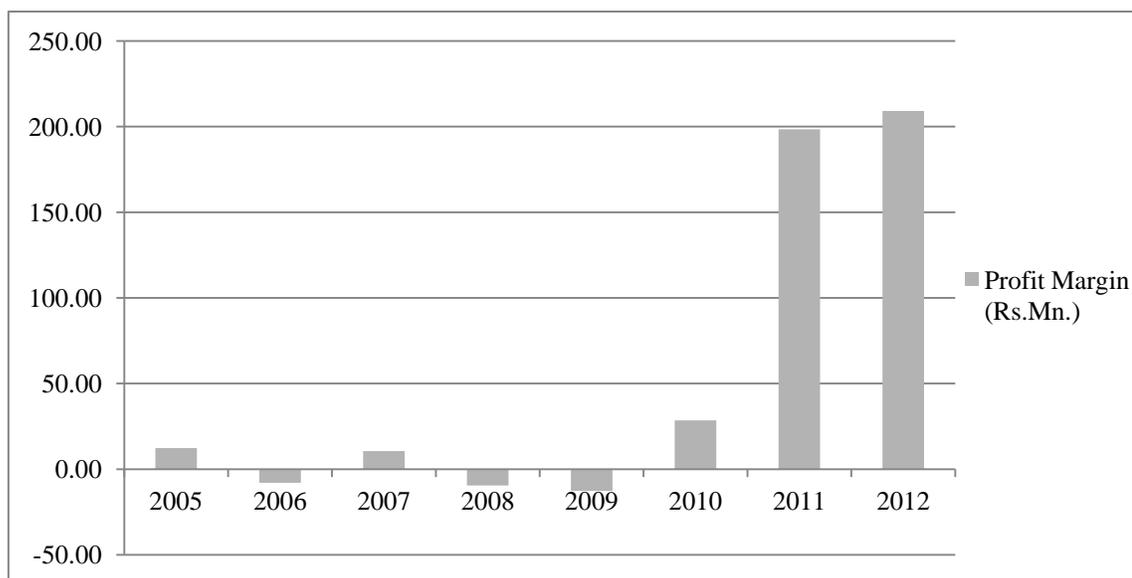


4.5. EXPENDITURE VS. REVENUE



As shown in the graph above there is an increase of revenue as well as profit margin of the department.

4.6. CHANGES IN PROFIT MARGIN OF THE DEPARTMENT FROM 2005 TO 2012 (EXCLUDING CAPITAL EXPENSES)



4.7. PUBLIC OFFICERS ADVANCE ACCOUNT DETAILS

Item No: 32201

	Maximum Limit of Expenditure (Rs.)	Minimum Limit of Receipts (Rs.)	Maximum Limit of Debit Balance (Rs.)
Budget estimate- 2012	20,000,000.00	8,500,000.00	60,000,000.00
Revised limits	-	-	-
Actual data	14,320,346.00	12,652,989.00	47,709,865.00

4.8. EXPENDITURE**4.8.1 Capital Expenditure**

Sub Project Object Code	Object Details	Net Provision 2012 Budget Rs.	Total Expenditure Rs.	Balance Provision Rs.	%
	<u>Rehabilitation of Buildings & structures</u>				
0	2001 Building and Structures	1,820,000.00	1,393,343.00	426,657.00	77%
0	2002 Plant, Machinery and Equipment	273,000.00	270,228.00	2,772.00	99%
0	2003 Vehicles	455,000.00	317,435.00	137,565.00	70%
	<u>Acquisition of Capital</u>				
0	2101 Vehicles	0	0	0.00	
0	2102 Furniture and Office Equipment	455,000.00	436,370.00	18,630.00	96%
0	2103 Plant, Machinery and Equipment	318,000.00	276,168.00	41,832.00	87%
0	2104 Buildings and Structures	910,000.00	199,472.00	710,528.00	22%
0	2105 Land and Land Improvements	1,365,000.00	1,340,401.00	24,599.00	98%
	<u>Capital Transfers</u>				
0	2201 Botanic Gardens Trust	81,900,000.00	81,900,000.00	0.00	100%
0	2401 Training and Capacity Building	91,000.00	82,359.00	8,641.00	91%

Sub Project	Object Code	Object Details	Net Provision 2012 Budget Rs.	Total Expenditure Rs.	Balance Provision Rs.	%
		<u>Special Projects</u>				
1	2105	Gampaha Botanic Gardens/ Ganewatte Medicinal Plant Garden	27,300,000.00	27,094,719.00	205,281.00	99%
2	2105	Floriculture Development	35,490,000.00	33,674,008.00	1,815,992.00	95%
3	2105	Dry Zone Botanic	136,500,000.00	126,486,173.00	10,013,827.00	93%
4	2105	Avissawella Botanic Gardens	36,400,000.00	35,499,926.00	900,074.00	98%
6	2105	Floriculture Promotion Programme	4,550,000.00	2,492,793.00	2,057,207.00	55%
		Total	327,827,000.00	311,463,395.00	16,363,605.00	95%

4.8.2. Recurrent Expenditure

Object Code	Object Detail	Net Provision 2012 Budget (with FR66 transfers) Rs.	Total Expenditure (Rs.)	Balance Provision (Rs.)	%
	<u>Personal Emoluments</u>				
1001	Salaries and Wages	87,900,000.00	87,821,739.27	78,260.73	100%
2002	Over Time and Holiday Pay	4,250,000.00	4,207,052.86	42,947.14	99%
1003	Other Allowances	50,315,000.00	50,314,127.67	872.33	100%
	<u>Travelling Expenses</u>				
1101	Domestic	1,300,000.00	1,284,339.20	15,660.80	99%
1102	Foreign	50,000.00	46,437.50	3,562.50	93%
	<u>Supplies</u>				
1201	Stationary and Office Requisites	700,000.00	695,495.16	4,504.84	99%

Object Code	Object Detail	Net Provision 2012 Budget (with FR66 transfers) (Rs.)	Total Expenditure (Rs.)	Balance Provision (Rs.)	%
1202	Fuel	2,500,000.00	2,468,614.00	31,386.00	99%
1203	Diets and Uniform	165,000.00	134,453.00	30,547.00	81%
1205	Other	3,000,000.00	2,986,639.15	13,360.85	100%
	<u>Maintenance Expenditure</u>				
1301	Vehicles	1,300,000.00	1,285,969.90	14,030.10	99%
1302	Plant Machinery &	550,000.00	544,533.59	5,466.41	99%
1303	Building & Structures	350,000.00	331,505.95	18,694.05	95%
	<u>Services</u>				
1401	Transport	500,000.00	488,105.00	11,895.00	98%
1402	Postal and Communication	1,400,000.00	1,324,706.81	75,293.19	95%
1403	Electricity and Water	2,900,000.00	2,815,720.78	84,279.22	97%
1404	Rents & Local Taxes	320,000.00	283,140.81	36,859.19	88%
1405	Other Services	16,400,000.00	16,330,848.10	69,151.90	99%
	<u>Transfers</u>				
1506	Property Loan Interest	980,000.00	953,286.98	26,713.02	97%
	Total	174,880,000.00	174,316,715.73	563,284.27	100%

BOTANIC GARDENS AND UNITS UNDER THE DEPARTMENT

5.1. ROYAL BOTANIC GARDENS, PERADENIYA

The Royal Botanic Gardens, Peradeniya was established by the British in 1821. It is responsible for almost all major plant introductions for economic and environmental development in this country. Activities that followed resulted in the development of economic and plantation crops, emergence of important state departments like Department of Agriculture, and other



institutions for the development of Plantation Crops such and Tea and Rubber.

Royal Botanic Gardens, Peradeniya occupy a horse-shoe-shaped peninsula round which flows the chief river of Sri Lanka, the Mahaweli. The main entrance is from the Colombo road, about 4 miles from Kandy. The total area is 147 acres containing about 4,500 species. The mean elevation above sea level is about 1,600 ft.

There is a flourishing growth of huge tropical trees along the lawns and the orchid house is a prime attraction of this garden. This contains more than 300 varieties of exquisite orchids blooming in profusion. The Medicinal plant garden sustains trees and plants used for the traditional Ayurvedic medicine. The scenic splendor of the garden rose by the Mahaweli River which flows through its fringes.

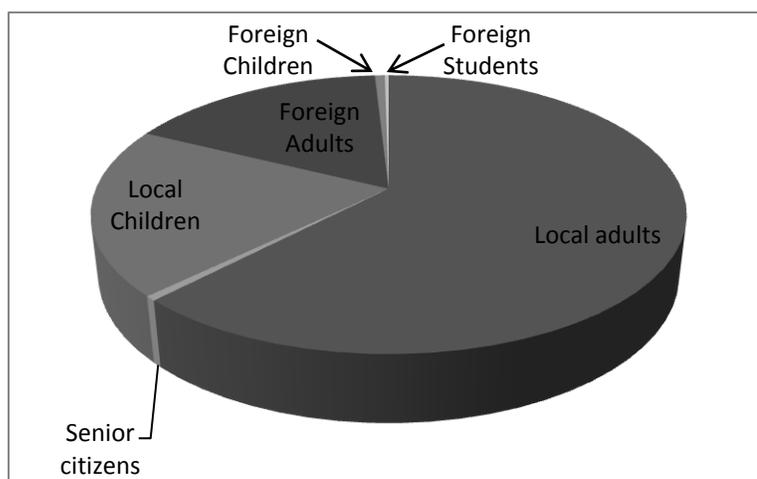
5.1.1. Staff details as of 31st December 2012

Officers Name	Post	Qualifications	Discipline
Dr. (Mrs.) A.M.A.S. Attanayake	Deputy Director	B.Sc. (Botany), M.Sc., Ph.D.	Plant Science and Plant Systematics
Mr. P. D. S. Wijeratne	Curator	B.Sc.	Agriculture
Mr. P.K. Mahantheagama	Principal	B.Sc.	Agriculture
Mr. A.G. Sunil	Programme Assistant	B.Sc., M.phill	Plant Science
Mrs. N.A.S.J.Senevirathne	Programme Assistant	B.Sc.	Biology
Mr. P. R. C. Rathnayake	Agricultural Instructor	Diploma In Agriculture	Landscaping
Mr. H. R. S. M. Herath	Agricultural Instructor	Diploma In Agriculture	Nursery management and plant production
Mr. S. S. M. Samarakoon	Garden Assistant	One year course in Landscape Gardening	Tree care and maintenance
Mr. D. M. S. Dhanasekara	Garden Assistant	One year course in Landscape Gardening	Maintenance of services
Mr. T. R. B. Weerakoon	Garden Assistant	One year course in Landscape Gardening	Landscaping
Mr. T. Premasiri	Garden Assistant	One year course in Landscape Gardening	Labour distribution and supervision
Mr. A. G. Thilakarathna	Garden Assistant	One year course in Landscape Gardening	Supervision of security services

In addition to the above staff mentioned in the table, 05 Management Assistants, 01 Bungalow keepers, 03 garden supervisors, 01 lab assistant, 07 Assist. Charge collector, 01 Driver, 01 budder, 02 Label writers, 06 Lawn mower operators, 01 Storeman, 19 Watchers , 02 Nurserymen ,02Tractor Operators, 01Carpenter, 03 Masons, 01 Welder, 01 Blacksmith, 02 Tree Cutters, 01 Tree Feller, 81 Permanent Labourers and 09 Contract Labourers are providing their services to the garden.

5.1.2. Visitations

1,396,271 people (1,149,458 locals and 246,813 foreigners) visited the botanic garden this year and foreign visitors to botanic garden show a 9% increase when compared to the last Year.

**5.1.3. Revenue**

88,857 plants including Anthurium, Orchid, foliage and medicinal plants, 2,662 seed packets and other related plant materials such as dry flowers, bamboo pots, spices leaf mould and fresh flowers were

sold during this year at the sales centre located in the garden. Rs. 326.2Mn was earned during this year as Rs. 311.8Mn from visitors (Rs.4Mn from Plant sales, Rs. 0.3Mn from publications, Rs. 9.6Mn from Rents, Rs. 0.3Mn from filming).

5.1.4. Arrival of Special Delegates

Different categories of delegates from different countries visited the garden and admired garden maintenance and landscaping features.

	Delegates	Date	Country
1.	His Royal Highness Prince Michael & Her Royal Highness Princess Michael of Kent	02.01.2012	England
2.	Mgr. Miroslav Borbek, The Director and 8 other officers of Prague zoo	20.01.2012	Czech Republic
3.	Mr. A. K. Singh, South Indian Army Commander Lieutenant General	10.03.2012	India
4.	Mr. Chen Youxiu Mayor of Saoyangh city Government of China and other Chinese representatives	12.03.2012	China
5.	Mr. Dulip Barua, Minister of Industries, Govt. of the People's Republic of Bangladesh	31.03.2012	Bangladesh
6.	21 officers in National Defense College	20.05.2012	Nigeria
7.	Hon. Erlinda F. Basilio under secretary for policy of the Department of Foreign Affairs	25.05.2012	Philippine
8.	Professor Kwaak Young Hoon, Project Director of "Lumbini World City master Plan "and Shambhu Malla	30.05.2012	South Korea
9.	Dr. Kamal Bawa, Professor of Biology at the University of Massachusetts at Boston	17.07.2012	USA
10.	Prof. Peter Ashton , Research Professor of Forestry and Director of the Arnold Arboretum at Harvard University	17.07.2012	USA
11.	H.E. P. Worachat, Ambassador of Thailand to Sri Lanka	01.08.2012	Thailand
12.	Ministers who participated in commonwealth conference	04.09.2012	-
13.	Dr. Mohan Kaul ,Chairperson of Commonwealth Business Conference	02.10.2012	India
14.	11 person delegation of state forestry administration of China led by Madam Giang Zehui the president of China Flower association	04.10.2012	China
15.	100 Catholic Bishops who participated Catholic Bishop conference	06.10.2012	-
16.	Official visit of Mr. H. E. Saho Kisang, Chairperson of business conference in people's republican of China	08.10.2012	China
17.	Foreign representatives who participated in Science Foundation Conference in Asia	10.10.2012	-
18.	Education officers of Maldives Islands with the collaboration of National Educational Institute in Maharagama	04.11.2012	Maldives
19.	Parliamentary Members in Seychelles Island	06.11.2012	Seychelles

	Delegates	Date	Country
20.	14 administration officers who attached to the Lal Bahaduri National Education Academy in India	08.11.2012	India
21.	Ambassador Michele J. Sison, Ambassador of United States of America to Sri Lanka	29.11.2012	USA
22.	30 seed Technologists in SAARC countries with association of Department of Agriculture in Gannoruwa	10.12.2012	-
23.	14 Maldives Island Education officers and 10 officers of National Institute of Education	12.12.2012	Maldives

5.2. NATIONAL HERBARIUM

The National Herbarium is the place where dried herbarium specimens of the flora of Sri Lanka and many other specimens of exotic and cultivated plot species are preserved for systematic studies. Nearly 160,000 herbarium specimens are conserved at appropriate conditions for reference



purposes. About 3500 books, periodicals and a historical collection of botanical illustrations related to flora are also preserved.

The National Herbarium is actively involved in plant exploration, identification, specimen preparation, in addition to documentation and revision of floral wealth of the country. By surveying and inventorying plant genetic resources for sustainable utilization, it contributes significantly to the development of the national economy. It provides facilities to the local and foreign researchers to carry out taxonomy related research work while serving the National Plant Quarantine and Customs to identify plants correctly when legal matter arises in plant and plant material import and export. The National herbarium is also engaged in exchange of knowledge and specimens with the bona fide herbaria and research institutes of the other parts of the world. It participates as a key institute for national and global red listing work as it is the National Red Listing authority for flora in Sri Lanka.

5.2.1. Staff Details as of 31st December 2012

Name	Designation	Qualification	Discipline
Mrs. R.A.S.W.Ranasinghe	Deputy Director (Actg.)	B.Sc.(Botany), M.Sc.	Plant Taxonomy and Systematics of Higher plants and Management of the unit
Mrs. N.P.T. Gunawardena	Agriculture Monitoring Officer	B.Sc.(Botany), M. Sc	Taxonomy of Bryophytes
Mrs. G. Fonseka	Programme Assistant	B.Sc. (Botany), M. Sc	Plant Taxonomy and Systematics of higher plant

In addition to the above staff mentioned in the table, 01 Management Assistant and 03 permanent labourers are providing their services to the unit.

5.3. FLORICULTURE RESEARCH AND DEVELOPMENT UNIT

The Floriculture Research and Development Unit is mandated to conduct research programs related to the floriculture sector and also contribute to the development of this sector through training programs, on site advisory services, providing information on investment opportunities in this sector as well as establishing grower



organization at district level and providing assistance in the form of material, equipment and quality planting material.

The floriculture sector in Sri Lanka has emerged to be a lucrative foreign exchange earning venture in the recent past. Thus it is imperative that this sector is further developed to generate income and provide

employment as well. The Floriculture Research and Development Unit helps those involved in the floriculture sector to realize their true potential and achieve greater profits with sustainable development of their cultivations, their surrounding environment, villages, towns, cities and the country as a whole.

5.3. 1. Staff details

Floriculture Research and Development Unit in Peradeniya Botanic Gardens

	Name	Designation	Qualification	Field
1.	Dr. Shelomi A. Krishnarajah	DD (Floriculture Research)	B.Sc. (Botany), M.Sc., Ph.D.	Bio Technology and management of the Unit
2.	Mr. A. Yogarajah	RA	Diploma In Agriculture	Micro-propagation
3.	Ms. R. M. Kamala Menike	AI	Diploma In Agriculture	Anthurium culture
4.	Mr. U. B. Palipane	AMO	B.Sc.	Water Plant and Gerbera culture
5.	Ms. K. A. C. N. Seneviratne	AMO	B.Sc., M. Sc	Post Harvest Handling, Bio fertilizers
6.	Mr. M. M. K. P. Walikumbure	AI	Diploma In Agriculture	Foliage plants
7.	Ms. W. M. D. E. R. Andradhi	AI	Diploma In Agriculture	Orchid culture
8.	Ms. I. H. C. N. Samanthika	AI	Diploma In Agriculture	Overseas on no pay leave
9.	Dr. (Ms.) H. M. R. Herath	PA	B.Sc., M. Sc, PhD	Micro Propagation
10.	Ms. M. K. Rubesinghe	PA	B.Sc., M. Sc	Plant Breeding
11.	Mr. R. A. S. Perera	PA	B.Sc., M. Sc	Floriculture extension- Kandy region
12.	Ms. A. N. Abeykoon	PA	B.Sc., M. Sc	Plant pathology
13.	Ms. L. A. P. Perera	PA	B.Sc., M. Sc	Agronomy, Post Harvest Handling
14.	Ms. M. Uthpalewarna	PA	B.Sc.	Floriculture extension – Kegalle region
15.	Ms. K. A. S. Thilakaratne	PA	B.Sc.	Floriculture extension – Kegalle region

5.4. SUWAHAS MAL SEVANA UNIT, NARAHENPITA

This unit was established with the objective of marketing products of growers belonging to various “Suwas Mal” flower growers’ organizations in various parts of the island.

This unit originally located at Torrington Square was shifted from its original location and is presently functioning at Narahenpita. A



showroom for sale of cut flowers and value added products has been constructed and has been furnished with flower coolers, cabinets and office furniture as well as items for display of flowers. Initially it is envisaged flowers produced at the Peradeniya and Hakgala Botanic Gardens would be sold at this outlet. Subsequently products of growers will also be added.

5.4.1. Staff details

Officers Name	Post	Qualifications	Discipline
Mrs. R.S.W. Gomes	Assistant Director	B.Sc.	Officer in charge

In addition to the above staff mentioned in the table, 11 officers transferred from Samurdhi Authority to the Department of National Botanic Gardens are providing their services to the unit.

5.5. BOTANIC GARDENS, HAKGALA

Botanic Gardens at Hakgala were established in 1861 for the purpose of experimentation and promotion of Cinchona cultivation in Sri Lanka. The garden is lying in the hill country among Sri Lanka’s tea plantations in the Nuwara Eliya district and this garden is regarded as the second largest Botanical garden in the island.



This Botanic Garden situated at an elevation of about 1745 m above mean sea level, lie under the shadow of the Hakgala Rock (meaning “Elephant’s jaw rock”). This massive rock towers to a height of about 2,200m behind the gardens and the surrounding forest reserve like a solitary giant. The garden is situated 9.5 km. from Nuwara Eliya towards south-east direction along Nuwara Eliya - Badulla road.

The flora of the gardens is distinctly sub tropical and consists of representatives of the indigenous, montane flora intermingled with those introduced from other subtropical countries, systematically planted in various sections of the gardens.

5.5.1. Staff details as of 31st December 2012

Officers Name	Post	Qualifications	Discipline
Mr. M.M.D.J. Senarathna	Curator	B.Sc. (Botany), M.Sc. (Forestry)	Plant Science
Mr. R.G.S.P. Piayasena	Programme Assistant	B.Sc.	Floriculture
Mr. A. B. Maddegoda	Garden Assistant	One year course in Landscape Gardening	Landscape Gardening

In addition to the above staff mentioned in the table, 03 Management Assistants, 02 Bungalow keepers, 03 garden supervisors, 01 lab assistant, 01 Assist. Charge collector, 01 Driver, 01 budder, 01 Label writer, 02 Lawn mower operators, 01 Store man, 01 Watcher, 01 Nurseryman, 45 permanent labourers and 05 contract labourers are providing their services to the garden

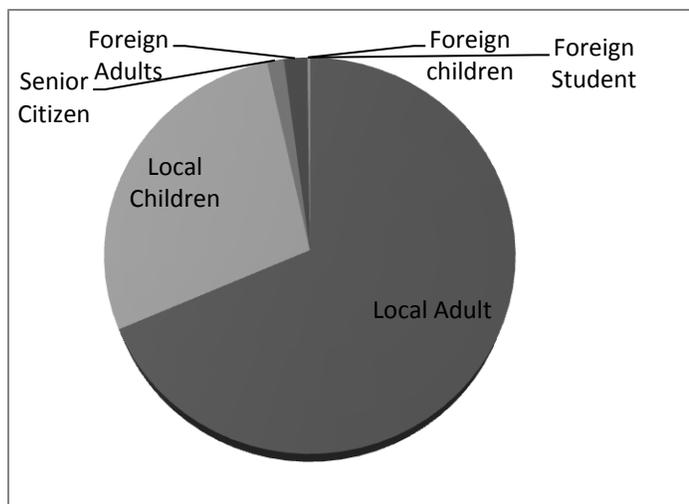
5.5.2. Visitation

600,232 people (587,743 local visitors and 12,489 foreigners) visited the botanic garden in 2012 and it is an increase of 18% when compared to the previous year (510,116).

5.5.3. Revenue

73,238 numbers of plants (Outdoor and Indoor), 6,680 numbers of seed packets and 33,926 fresh flowers were sold at the sales centre of the Garden during

this year. People entered to the garden by 4,913 numbers of Motor cars, 932 numbers of Motorbikes and 25 Foot bikes to experience the different landscape features of the garden.



Rs. 40,112,442.40 was earned during this year under following categories;

Category	Revenue (Rs.)
Admission fees	35,525,015.00
Vehicle Entrance fees	807,475.00
Plant and other related sales	3,200,949.90
Sales of publications	15,890.00
Reservation of the Circuit bungalow	341,547.00
Filming and other	221,565.50
Total	40,112,442.40



Gerbera plants grown at the nurseries

5.5.4. Arrival of special delegates

Army officers from Pakistan and 15 delegates from different countries visited the garden on 20.04.2012 and admired garden maintenance and landscaping features.

Prof. Peter Ashton (Harvard University), Prof. Mark Ashton (Yale University) with Prof. Nimal Gunatilleke (Peradeniya University) and Prof. Savitri Gunatilleke visited the garden on 21.07.2012 to study ancient tea cultivation in the garden.

5.6. GAMPAHA BOTANIC GARDENS

Henarathgoda Botanic Gardens, Gampaha was established in 1876 for the promotion of the Para rubber cultivation in Sri Lanka. It is situated 2 km from the Gampaha town on the Gampaha-Minuwangoda road. Originally it was 36 acres in extent and with the addition of 7 acres in 2005 it is now 43 acres in total extent. The



Garden was generously patronized by over 150 000 local and foreign visitors during the year.

Ex-situ conservation in order to conserve biodiversity in the area, Education and extension services on Floriculture & Landscaping, Dissemination of Botanical information, Research related to floriculture & Tissue culture to promote amenity horticulture, Care and maintenance of religious and historic trees,

Production of plants for sales and general maintenance, Organizing flower exhibitions to provide a market for small scale growers are the main activities performed by the Garden.

5.6.1. Staff details as of 31st December 2012

Staff attached to the Botanic Gardens

Officers Name	Post	Qualifications	Discipline
Mrs. Chandrika Jayaweera	Curator	B.Sc.(sp) Agric., M.Sc.(Horti.)	Plant Science
Mrs. J. K. A. Tamara Kumari	Agriculture Instructor	NDT (Agriculture)	Nursery management and Plant production
Mrs. M. D. D. S. Mahayagoda	Agriculture Instructor	NDT (Agriculture)	Landscaping, Arboriculture
Mrs. A.A.T. Malani	Agriculture Instructor	1 Yr. Practical course in Agriculture	Landscaping, Arboriculture
MRs. S. D. Ramyakanthi	Agriculture Instructor	1 Yr. Practical course in Agriculture	Education and Training.
Mrs. R.M.T. Lakmali	Programing Assistant	BA (sp) (Mass Communication)	Progress monitoring

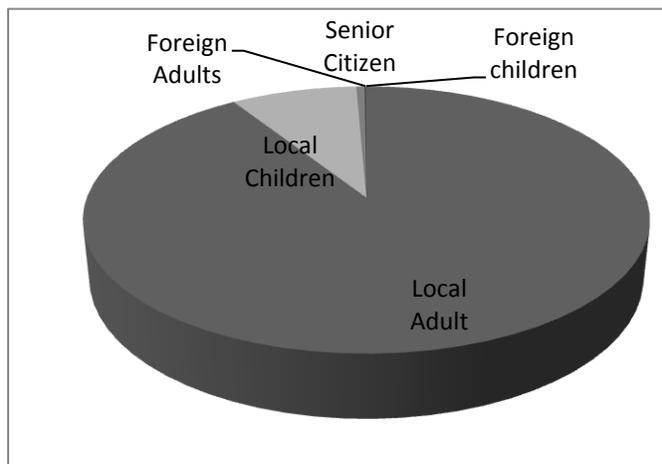
Staff attached to the Floriculture research and extension unit

Officers Name	Post	Qualifications	Discipline
Ms. M. C. Wickramasinghe	Research Officer	B.Sc., M. Sc	Agronomy of floriculture crops
Ms. Anoma Bowatha	Research Assistant	Diploma In Agriculture	Plant production
Ms. M. A. N. Jayawardana	Agriculture Instructor	Diploma In Agriculture	Floriculture extension in Gampaha District
Mr. D. V. R. A. Perera	Agriculture Instructor	Diploma In Agriculture	Floriculture extension in Gampaha District
Ms. A. P. Siriwardena	Programme Assistant	B.Sc., M. Sc.	Floriculture extension in Gampaha District/ cultivation & Micro propagation of Anthuriums
Ms. A. N. Nanayakkare	Programme Assistant	B.Sc., M.Sc.	Floriculture extension in Gampaha District / cultivation & Micro propagation of Orchids
Ms. B.U.G. Ranasinghe	Programme Assistant	B.Sc.	overseas on no-pay leave
Mr. R. A. M. I. Ratnayake	Programme Assistant	B.Sc.	Tissue culture, Water plant & Gerbera collection
S. A. A. U. Subasingha	Programme Assistant	B.Sc., M. Sc	Floriculture extension in Gampaha District
K. L. K. Dharmadasa	Programme Assistant	B.Sc., M. Sc	Floriculture extension in Gampaha District

In addition to the above staff mentioned in the table, 05 Management Assistants, 01 Assist. charge collector, 01 Driver, 01 Office assistant, 01 Tractor operator, 01 Budder, 02 Lawn mower operators, 02 Nurserymen, 02 Tree fellers, 35 Permanent labourers and 03 Contract labourers are providing their services to the garden

5.6.2. Visitations

194,956 people (194,713 local visitors and 243 foreigners) visited the botanic garden this year and it is 4.6% of increment when compared to the last year as well as the number of foreign visitors to botanic gardens in 2012 shows a increase when compared to the last year.



Visitor distribution at the garden

5.6.3. Revenue

18,876 numbers of outdoor and indoor plants and other plant related materials were sold during this year. 13,051 Motor cars, 13,279 Motorbikes and 47 Bicycles were entered to the garden. 3,988 people used paddle boats at the lake created in the garden and enjoyed their day at the garden. Rs. 14,716,622.00 was earned during this year as total revenue under following categories;

Category	Revenue (Rs.)
Visitors	9,300,940.00
Vehicle Entrance	3,045,275.00
Plant and other related sales	686,905.00
Sales of publications	15,060.00
Ground rents	685,500.00
Filming and other	171,040.00
Boat rides	797,600.00
Total	14,716,622.00



Visitors enjoy their stay at the Botanic Garden, Gampaha

5.7. MEDICINAL PLANT GARDENS, GANEWATTE

Medicinal Plant Garden, Ganewatte is situated in the north western province about 15 miles away from Kurunegala. Being located in the intermediate zone, it offers an ideal site for cultivating a large number of medicinal plants. The garden is 52 acres in extent. About half of the land is occupied by coconut cultivation. And 22 acres are occupied by medicinal plants.



The main objective of the garden is to conserve the rare species which are not easily available, to demonstrate systematic plantation of medicinal plants & method of collection and to observe the rare species.

5.7.1. Staff details as of 31st December 2012

In addition to the above staff mentioned in the table, 01 store man, 10 permanent labourers and 03 contract

Officers Name	Post	Qualifications	Discipline
Mr. Abeysinghe	Officer in charge	Diploma in Landscape Gardening	Unit management
Mrs. E.P. S. Illangaratne	Agriculture instructor	Diploma in Agriculture	Plant production

labourers are providing their services to the garden.

5.7.2. Revenue

12,298 medicinal plants were produced and 9,936 were sold at the sales centre during this year. In addition to that 16,637 coconuts were also sold. A revenue of Rs. 583,552.00 was earned during 2012 by selling medicinal plants, coconuts and other products (dried Nelli, Mango, etc.).

5.7.3. Visitations

733 People visited the garden to obtain information on medicinal plants to learn conservation and utilization of medicinal plants as well as people visited the garden to buy plants and medicine for their necessities. The majority of the people who visited were Ayurvedic physician or students of Ayurveda Colleges.

5. 8. DRY ZONE BOTANIC GARDENS, HAMBANTOTA

The Dry Zone Botanic Gardens is the first botanic gardens in Sri Lanka designed by the local experts after 130 years. The garden is 300 acres in extent. It is located in Mirijjawila, Hambantota District of the Southern Province and development activities was started in year 2006.



Dry zone forest vegetation is

fast disappearing due to various human activities and in particular about 98% of dry zone forest vegetation in the Hambantota area has been lost during the last 30 years. The main purpose of the new garden is to conserve dry and arid zone plants, ex-situ in short term and in long term, to conduct on studies about plants that are lesser known and underutilized in the dry zone; promote the herbal industry; promote economic development in the area and provide education and training on botany and floriculture in the dry zone.

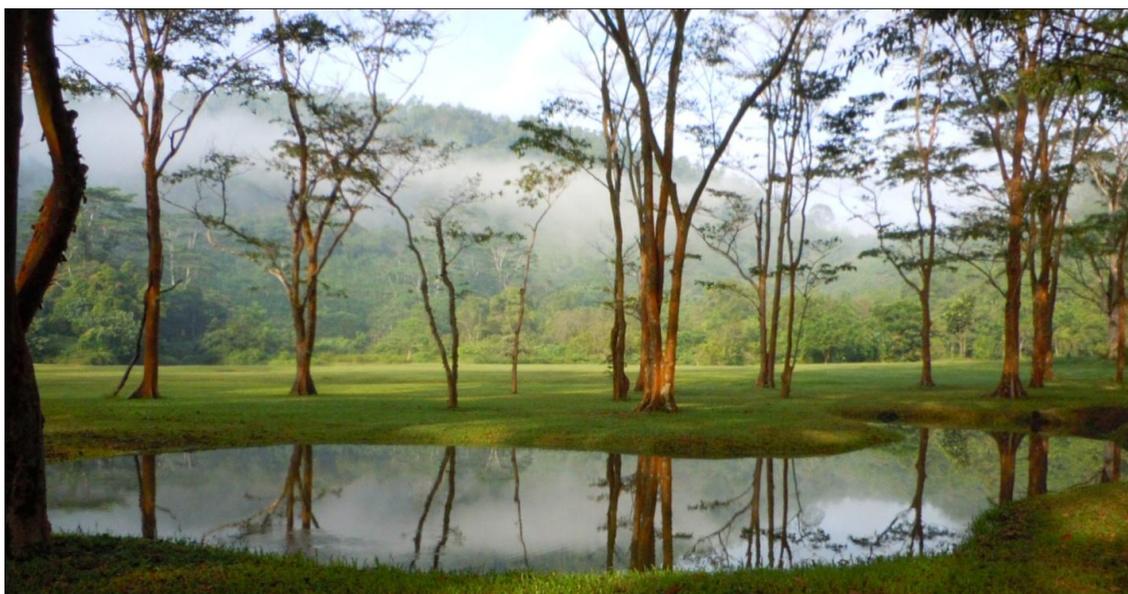
5.8.1 Staff details as of 31st December 2012

Officers Name	Post	Qualifications	Discipline
Mr. E.M.S. Ekanayake	Officer in charge	B.Sc.	Unit management
Mrs. Maduri Peris	Head of the Floriculture Unit	B.Sc.	Floriculture extension and development
Mr. M.G.S. Kumara	Programme Assistant	B.Sc.	Tree care and Maintenance and medicinal plants

In addition to the above staff mentioned in the table, 3 management assistants, 2 drivers, 27 permanent labourers and 43 contract labourers are providing their services to the garden.

5.9. Wet Zone Botanic Gardens, Avissawella

The Wet Zone Botanic Garden situated in Illukowita, Avissawella in the Western province has extent of 62 acres. Threatened and vulnerable flora in the area will be conserved in this Botanic Garden. It envisage to uplift the tourism industry and fast growing floriculture industry in the island. The garden serves as a living laboratory for Botany and Ecology students and researchers, an area for educational research, ex-situ conservation of wet lowland plants with the improvement of wet zone landscape to showcase various species of plants with economic, aesthetic and ecological value as a recreation area for families.



5.9.1. Staff Details as of 31st December 2012

Officers Name	Post	Qualifications	Discipline
Mr. R.D.D.Kularathna	Officer in charge	B.Sc.	Unit management
Mr. S. S. Otknapitiya	Agriculture Instructor	Diploma in Agriculture	Landscape and gardening

In addition to the above staff mentioned in the table, 5 permanent labourers and 4 contract labourers are providing their services to the garden.



TOWARDS THE FINEST BOTANIC GARDENS IN THE TROPICS UNDER THE DIRECTION OF NATIONAL DEVELOPMENT POLICY FRAMEWORK - MAHINDA CHINTHANA VISION FOR THE FUTURE

The Department of National Botanic Gardens carried out activities, programmes and projects aligning with the Mahinda Chinthana Vision for the Future: Development policy framework of the Government. Accordingly, the department actively engaged in programmes towards establishing more botanic gardens and field gene banks and mandate them to undertake ex-situ conservation of Plant diversity in all bioclimatic regions of Sri Lanka; Promoting the domestic floriculture equipping the farmers with required technology and other skills through appropriate research programmes; providing nationally and internationally recognized training on floriculture and landscaping in keeping with advancing technology meeting the demand of labour markets both domestic and abroad; diversifying the gardens activities to promote eco-tourism in the country.

6.1. EX-SITU CONSERVATION OF PLANTS

Statement of Ten year Programme (Haritha Lanka Programme) -under Mission 2: Saving the Fauna, Flora and Ecosystems:

Establish more botanic gardens and field gene banks and mandate them to undertake ex-situ conservation of bio-diversity in all bioclimatic regions of Sri Lanka

Conserving and restoring rare and endangered indigenous plants of Sri Lanka to secure them from extinction is utmost important. Conserving native flora in protected areas and reserves (in-situ conservation) alone may not be adequate to protect the valuable floral wealth of Sri Lanka. Ex-situ conservation of plants (conserving plants outside their native habitats) is also an important conservation practice complementary to in-situ conservation.

Ex-situ conservation is perhaps the most important role of the Botanic Gardens. Royal Botanic Gardens, Peradeniya, Hakgala Botanic Gardens, Gampaha Botanic Gardens and Ganewatta Medicinal Plant Garden are home to many of the existing ex-situ collections of endemic, native and even some exotic plants. The newly established Botanic gardens, Dry zone Botanic gardens at Mirijjawila Hambantota and Wet Zone Botanic Gardens at Illukowita, Awissawella specifically focus on conserving dry zone and wet zone plants.

Several programmes/projects were carried out as research, surveys/explorations, restoration, technical assistance, education and advocacy on plant conservation in collaboration with multiple conservation agencies and organizations.

6.1.1. Establishment of New Botanic Gardens

6.1.1.1. Mirijjawila Dry Zone Botanic Garden

Development activities were continued and accelerated during this year.

Establishment of the entrance complex and the car park; three summer houses with toilets were carried out by the Sate Engineering Cooperation. 40% of construction activities of the entrance complex and 30% of the construction activities of the car park and 50% of construction activities of three summer houses with toilets were completed.



Construction work of the summer houses

garden. New areas were developed and new landscape features and structures were added as landscape development activities such as establishment of the main formal garden, foot paths, avenues and shrub gardens, cactus collection, etc. living collection of the garden was also enhanced by the planting programme.



Construction work of the main entrance

Installation of drinking water scheme was initiated by National Water Supply & Drainage Board as to develop facilities to visitors after opening.

Construction of a bachelor's quarters was carried out by Building Dept. of Hambantota District and 25% of its construction activities were completed.

Improvement of internal road network was continued to enhance the landscape features of the



Upgrading internal road network

6.1.1.2. Illukowita Wet Zone Botanic Gardens

Development activities of the garden were continued moving towards the completion of the garden.

Land preparation and construction of landscape features were carried out to improve scenic beauty and sustainable utilization of the land.

Establishment of the main entrance and visitor center was carried out by the State Engineering Corporation and 50% of its construction activities were completed. The two toilet blocks are being constructed to provide public facilities at the garden before its opening.

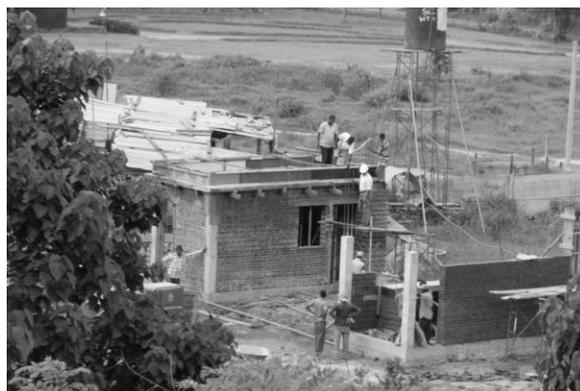
Internal road network was upgraded by laying “interlocks” to enhance the outlook of the garden and improve the condition of roads.

03 ponds were added to the garden and lake was expanded to enhance landscape or architectural features. The lawn area of the garden extended up to the front of the garden.

Box culverts were placed to protect the land from landslides due to heavy water flow from upper part of the garden when it gets rain. Establishment of a Rose garden in upper area of the garden was initiated. Culverts and retaining walls of lakes were set up and temporary garage was established near the poly tunnel at the garden.



▲ Establishing the Toilet Blocks



▲ Constructing the ticket counter of the main entrance complex

6.1.2. Undertake ex-situ conservation and bio-diversity conservation measures

6.1.2.1. Enrichment of Living Collection

a. *Plant production*

Outdoor and indoor plants were produced at the gardens for enhancing the living collection & landscape features of the garden as well as for selling at the sales outlet.

Garden	Category	Amount
Royal Botanic Gardens	Outdoor plants	180,320
Hakgala Botanic Gardens	Out door and Indoor plants	84,584
Gampaha Botanic Gardens	Out door and Indoor plants	44,350
Medicinal plant Gardens	Medicinal plants	12,298
Floriculture Research and Development Unit	Orchids, Anthuriums, Foliage plants, Gerbera	77,014
Total		398,566

b. Plants added to the arboreta of the gardens

Enrich the plant collection of arboreta in the gardens with rare, threatened as well as the native endemic plants were carried out this year as well to enhance the diversity of the collection. The amount of plants added to the arboreta of the gardens in 2012 is listed below in the table;

Garden	Amount
Royal Botanic Garden	301
Hakgala Botanic Garden	137
Gampaha Botanic Garden	35
Medicinal plant Garden	458
Total	931



Arboretum of RBG, Peradeniya

The list of some of the endangered and vulnerable plant species which were added to the Arboretum of the Royal Botanic Gardens, Peradeniya (RBG) in this year is shown in the table below;

Plant category	Plant sp.	No. of plants	Section of the Arboretum	Conservation status
Endemic and native	<i>Elaeocarpus coriaceus</i>	01	F	EN
	<i>Maduca clavata</i>	01	F	EN
	<i>Mitragyna parvifolia</i>	02	P	VU
Endemic and native	<i>Goniothalamus gardneri</i>	01	E	VU
	<i>Margaritaria indicus</i>	01	D	VU
	<i>Neolitsea fuscata</i>	01	C	VU
	<i>Elaeocarpus coriaceus</i>	01	F	EN
	<i>Nymphaea nouchali</i>	4	Pond near orchid House, south garden	VU

Upgrading of Fernery of the RBG, peradeniya was also initiated by adding new plants sps., in addition to these plant species.

c. Plant treatments

Plants were treated with care at the botanic gardens and tree treatments were performed for better management of the trees. 181 trees at 3 main botanic gardens were treated for stem cavities, basal stem cavities, removal of decaying & broken branches, fixation of cables and props and removal of dead trees from the field. Details are as follows;

37 tree treatments were carried out as follows at the RBG, Peradeniya. 15 stem cavity treatments for *Nothopegia beddomei*(H-110), *Durio zebethinus*(K-7), *Cassia siamea*(H-47), *Mouriria guianensis*(Aa-140), *Terminalia bellirica*(I), *Chrysophyllum roxburghii*(F-207), *Lagerstroemia* sp.(Aa), *Cynometra* sp. (B), *Ficus benghalensis*(D-396), *Brownea ariza*(D-393), *Lagerstroemia speciosa*(I), *Cynometra ramiflora*(B235), *Calicarpa reevesii*(E-27), *Citrus decumana*(E-1) plants;

removal of decayed branches, and broken branches of *Caryocar butyrosom*(D-55), *Durio zebethinus*(D-209), *Hura crepitans* (Main Border), *Ficus benjamina*(A-118), *Ficus elastica*(A-120), *Ficus* sp.(A-60) plants; fixation of cables and props of *Ficus benjamina*(G), *Diospyros ebenum* (Ab) and removal of dead trees from the field.

137 trees were treated at the Hakgala Botanic Garden and 7 trees were treated at the Gampaha Botanic Gardens. 46 historic and religious trees were treated based on requests made by Chief Monks of various temples island wide, 05 ancient trees were treated by RBG and 23 other important trees were treated in the area by Gampaha Botanic Garden.

d. Botanical Survey

A Botanical Survey was initiated this year by the National Herbarium in collaboration with the other units for exploration and collection of plant specimens, mainly of threatened plants, of dry and wet zones which are fundamental to implement bio diversity conservation measures and ex-situ conservation practices and to



utilize economically potential species sustainably. While conducting the botanical survey, 8 field excursions were conducted and 280 flowering plants, 12 ferns and 147 mosses species were collected. Identification of threatened plants is being carried out and 1 critically endangered, 13 endangered, 10 vulnerable and 11 near threatened flowering plant species were identified. Ex-situ conservation measures were also taken when necessary. The survey will be continued in next year as well to finalize and publish the findings.



Gordonia ceylanica (Theaceae) - Endangered species found in Knuckles Conservation Area

field explorations conducted and specimens collected are shown in the table;

Destination	Number of Specimens Collected		
	Angiosperms	Ferns	Mosses
Hantana	52	1	42
Loolkandura	43	3	45
Gannoruwa	18	-	-
Ruhunu NP	54	1	-
Jaffna	28	-	-
Amanawala-Ampane PR	30	4	25
Raxawa Estate	18	-	25
Kanneliya forest Reserve	20	3	-
Fishing Hut	17	-	10
Total	280	12	147

situ conservation for plant species in affected areas. 166 angiosperms 3 ferns specimens were collected at the explorations and identification is being carried out for assessment.

7 field excursions were carried out by the RBG, Peradeniya for collection of endangered/rare endemic and native plants to enhance the ex-situ conserved plant collections of the Garden as a part of Botanical survey. Details of field visits and plants collected by RBG are listed in the table below.

e. Other plant exploration activities

74 wild flowers and 95 way side trees were captured by the National Herbarium while doing field excursions in Reverstone, Loolkandura, Kelebokka and Fishing hut in month of October and November for compilation of books on “Wild flowers of Sri Lanka” and “Way side Trees of Sri Lanka”.

Plant explorations were carried out in Moragahakanda project as major hydro power generating venture to explore/assess effects for plant community in the area and to give technical advice and support in ex-situ and in-

Site of the exploration	Duration	Number of plant species collected			
		Endemic	Native	Endangered	Vulnerable
Hantana	2 days	3sps.	11sps.	2 sps.	-
Loolkandura	1 day	8sps.	4sps.	6sps.	4sps.
Gannoruwa	1 day	4sps.	5sps.	3sps.	2sps.
Jaffna	4 day	2sps.	4sps.	3sps.	-
Pahala Kadugannawa	1day	1sps.	10sps.	1sps.	-
Halgolla Estate	1day	5sps.	5sps.	5sps.	1sps.
Moragahakanda	5 day	97 species were collected and identification is being carried out			

Six field explorations were conducted in Pilikuttuwa, Ambepussa and Maligathenna to collect rare, endemic plants, plants not available in the garden by Gampaha Botanic Gardens. Ex-situ conservation measures were taken for collected endangered/rare plants and for plants not available in the garden



Conducting field excursions for plant collection

f. Plant labeling

Plant labeling programme was carried out to improve the live collection of the garden and disseminate scientific and other related information on plants for the public who visit the garden.

At the RBG, Peradeniya 1,100 labels were fixed on trees; 71 labels were fixed on memorial trees. In addition to that 36 signage boards were designed and fixed at related places and necessary arrangements were made to repair signage boards which were not in good condition. Renovations to descriptive labels were carried out and 10 detailed information boards are being designed. And at the Gamapa Botanic



Gardens, actions were taken to make 750 plant labels in 3 languages; Sinhala Tamil and English. 401 plant labels and 10 sign boards were fixed on plants at the Hakgala Botanic Gardens.

g. Enhancing plant database

At the RBG, Peradeniya, phenological information was collected on 15 native trees, 12 endemic trees and 28 exotic trees to study periodic life cycle events and how these are influenced by seasonal and inter-annual variations in climate, as well as habitat factors and photographs were also taken as a record to prepare the electronic database on living collection of the garden.

An accessioning system for plants in RBG, Peradeniya was introduced and continued as a record keeping system that includes a standardized accession number assigned to every plant on the grounds to use in tracking its name and origin.

Sections of the Arboretum and maps of RBG, Peradeniya were revised. Under this revision, Ebony collection, Plants in Section D, Palm collection adjoining the student garden & plant collection in section Q were revised.

44 herbarium specimens were identified, 9 herbarium sheets were prepared and 14 herbarium species were added to improve the existing herbarium collection of the garden. Herbarium techniques such as deep freezing, repairing, cleaning, labeling etc. were applied for about 2,240 specimens belonging to 1,371 species and 56 families of RBG Herbarium.

6.1.2.2. Enrichment of the Herbarium

a. Identification and enrichment of herbarium through plant explorations

Specimens collected from filed explorations were identified; verified; specimens/slides were prepared and added to enrich the National Herbarium collection. Enrichment of the National Herbarium collection and branch herbaria is listed below in the table.



Conducting Field Surveys for Moragahakanda Reservoir development project

Type of collection	Source	Verified and added	Herbarium
<i>Angiosperms</i>	Hantana	38	National Herbarium
	Loolkandura	40	National Herbarium
	Gannoruwa	14	National Herbarium
	Weudakanda forest reserve-Kurunegala-2011	53	National Herbarium
	Ududumbara area	6	National Herbarium
	Dolukanda forest reserve	12	National Herbarium
	Adam's Peak	11	National Herbarium
Ferns	Loolkandura	2	National Herbarium
	Hakgala	64	Herbarium- Botanic gardens Hakgala
Mosses	Hantana	37	National Herbarium
	Loolkandura	40	National Herbarium
	Horton Plains -2011	45	National Herbarium
	Kelabokka	10	National Herbarium
	Gannoruwa - 2011	15	National Herbarium
	Kitulgala-2008/2012	50	National Herbarium

b. Curation of the herbarium specimens and other ancillary collection

Regular activities were conducted in the herbarium for care and maintenance of herbarium collections (Plant Specimens, Library collection and other ancillary collections).

General maintenance of specimens was continued at the National Herbarium. General Maintenance Activities are listed below in the table.

	Activity	No. of Specimens
1.	Herbarium specimens repaired	12,367
2.	Specimens treated for insect damage (poisoning)	60
3.	Deep freezing specimens	9,554
4.	Specimens mounted	358
5.	Specimens remounted	5
6.	Species covers added	874
7.	Genus covers added	709
8.	Specimens cleaned	20,693
9.	Books cleaned	1121
10.	Specimens pressed	403
11.	Labels typed for genus covers, specimens and genus cards	1,335

c. Accessioning and herbarium data formulation

Preliminary activities were initiated (compiling lists of families, genera, etc.) for Accessioning Herbarium Specimens. Digitizing and editing of 1137 illustrations of H. D. Alwis's collection and compilation of data to a database as initiating establishment of a Digital Herbarium collection/unit in the National Herbarium. Editing of 15 volumes of revised hand book to the Flora of Ceylon completed.

6.1.2.3. Bio diversity conservation

a. National Red listing project

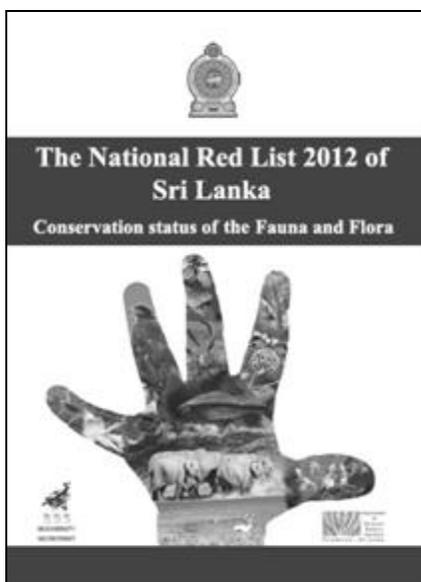
National Red Listing Project was conducted for data compilation and species assessments on preparation of National Red Data Book and species assessments for global red list in collaboration with Biodiversity Secretariat, Ministry of Environment and National Red Data book was launched at Waters Edge, Colombo on 18th December 2012.



Conducting expert meetings to finalize Red List Categories for Sri Lankan Flora

Out of the 3,154 species evaluated, 1,385 are threatened (critically endangered, endangered or vulnerable). This is about 44% of the total angiosperm flora in Sri Lanka. Five species are believed to be extinct and 2 species are extinct in the wild. These 5 extinct species are

Strobilanthes caudata (Acanthaceae), *Blumea*



The National Red List 2012 of Sri Lanka



An illustration of *Dipterocarpus glandulosus* Thw.

angustifolia (Asteraceae), *Crudia zeylanica* (Fabaceae), *Rinorea bengalensis* and *Rinorea decora* (Violaceae) and 2 extinct species in the wild are *Alphonsea hortensis* and *Doona ovalifolia*. Those 2 species are conserved and available today in the Gampaha and Peradeniya botanical gardens respectively. Ex-situ and in-situ conservation measures are being taken for identified endangered/threatened species while preparing and implementing recovery plans that need special conservation actions and restore their habitats and provide for their reintroduction.

Alarming note: 177 species are in the National Red list category of critically endangered possibly extinct meaning that those species are probably extinct from Sri Lanka (National Red data Book 2012).

Herbarium staff and Experts on flora from the Department of National Botanic Gardens, Universities, Biodiversity Secretariat of Ministry of Environment & other organizations

participated in Expert committee meetings and evaluated about 3,154 angiosperm species belonging to 185 families and 336 pteridophyte species belonging to 28 families.

b. Research programmes (in collaboration with the University of Colombo)

Several research programmes are being conducted (eg. bioassay guided fractionation and Isolation of bioactive natural compounds from Bryophytes, Taxonomy and cytology of selected species of Sri Lankan Gesneriaceae and Grassland diversity & exploration for threatened flora of Hantana Mountain Range)

c. Educational programmes conducted on Bio diversity conservation

Training and educational programmes, lectures on plant exploration, identification, nomenclature, herbarium management, plant morphology and biodiversity conservation were conducted for different sectors of the public to enhance knowledge on plant and bio diversity conservation as well as sharpening their skills in identifying trees and plants towards conservation and for other scientific activities.

Title of the programme	No. of participants	Institute	Conducted by
Role of Herbarium in indigenous medicine and biodiversity	31 undergratuates	University of Peradeniya	National Herbarium
Role of Herbarium in indigenous medicine and biodiversity	90 students	Wickramaarachchi Ayurvedic Institute.	National Herbarium
Plant systematics and herbarium techniques	100 students	Institute of Indigenous medicine, University of Colombo	National Herbarium
	123 students	Open University, Nawala	National Herbarium
	82 students	Open University, Polgolla	National Herbarium

Title of the programme	No. of participants	Institute	Conducted by
	25 undergraduates	University of Colombo	National Herbarium
	9 undergraduates	University of Kelaniya	National Herbarium
	25 trainees	Natural Wild life Research and Training Center, Giritale	National Herbarium
Herbarium in biodiversity conservation and taxonomy of plants	25 undergraduates	University of Peradeniya	National Herbarium
	33 Trainees	Landscaping and Floriculture Course at RBG	National Herbarium
Lecture on Plant Morphology	78 Trainees		National Herbarium
Role of Herbarium in biodiversity conservation and taxonomy of plants with practical sessions for management of the herbarium including virtual tour	30 undergraduates	University of Sri Jayawardenapura	National Herbarium
	60 students	National Education Training college Pulathisipura, Polonnaruwa	National Herbarium
	45 Students	Landscaping and Floriculture training course at RBG	National Herbarium
	25 students	D. S. Senanayake College, Kandy	National Herbarium
	25 Members	Young Zoological Association (YZA).	National Herbarium
Plant identification	21 students	Laggala Pallegama Central College	RBG, Peradeniya
	10 students	higher National Diploma from Naiwala Technical College	RBG
	20 Diploma students	National Design Center, Moratuwa	RBG
	20 undergraduates	Faculty of Agriculture, Ruhuna University	RBG
National Botanic Gardens towards bio diversity with field visits	210 newly recruited trainee officers	Sri Lanka Administration Service	RBG
Identification of plants, Tree care and maintenance, Techniques of arboriculture	22 School children	Mahanama College, Kandy	RBG

Title of the programme	No. of participants	Institute	Conducted by
Tree care and maintenance	20 students	Wild Life Conservation Certificate, DWLC	RBG
Biodiversity	218 students	Faculty of Natural Science at Open University	RBG
Plant and bio diversity conservation and botanic gardens	321 children	Schools of the area	Gmapaha Botanic Gardens

d. Workshops on bio diversity

The first national workshop on 'Evolution, Biodiversity and Conservation of Sri Lankan Bryoflora' was held at the Royal Botanic Gardens of Peradeniya from 6-11 of August 2012 with the participation of public and private scientific organizations and interested parties. The workshop was organized by the National Herbarium in collaboration with the Biodiversity Secretariat of the Ministry of Environment in Sri Lanka.

The three resource specialists invited to conduct the 6-days workshop are Dr. Benito C. Tan from the National University of Singapore (mosses), Dr. Ye Wen from Zhejiang University in China (leafy liverworts), and Dr. Sumudu C.K. Rubasinghe from the University of Peradeniya in Sri Lanka (thalloid liverwort and hornwort).

e. Preparation of awareness materials

Leaflets on Herbarium and herbarium techniques, flowering herbs and climbing plants, lower plants were designed and editing is being carried out. 4 Leaflets on endemic plants of Sri Lanka and exotic plants of Sri Lanka were designed and are ready to be published.



Conducting Practical session of the workshop at laboratory of Herbarium



National workshop on 'Evolution, Biodiversity and Conservation of Sri Lankan Bryoflora'

6.2. Floriculture Development

Statement of Mahinda Chinthana: *Vision for Future - 10 year development framework*

“Sri Lanka is sitting on a treasure chest, enabling it to assuming a lead role in tropical floriculture”

Several activities and programmes were carried out by the department for enhancement and development of the floriculture island wide through research programmes and extension activities.

6.2.1 Research Programmes

Research programmes were carried out under micro-propagation, agronomy, post harvesting techniques, pest and disease management and plant breeding areas to address current issues on floriculture sector by Floriculture Research and Development unit.

6.2.1.1. Trails and Investigations

a. *Micro-propagation*

Development of protocols for the micropropagation of the local endemic plant, *Chirita mooni* and *Bambusa multiplex* or Hedge Bamboo has been completed.

b. *Agronomy*

A trial to identify the best rooting medium and stem length for

rooting of *Polyscias balfouriana* cuttings was conducted in collaboration with the Botany Department of the University of Peradeniya. A

mixture of sand and coir dust at a ratio of 1:1 was the best rooting medium with 15 cm length cuttings with a diameter of 02 cm showing higher percentage of rooting.



Polyscias balfouriana



Chirita mooni



Ophiopogon chinensis

Research trials to compare and evaluate the effect of growth hormones on adventitious shoot formation *in vivo* on two different cut flower Anthurium varieties, to study the effect of media and maturity of cuttings for rooting of Bougainvillea as well as to investigate the effect of GA3 on growth of *Ophiopogon chinensis* are continuing as student projects.

c. Pest and disease management

The causal organism of an unknown disease affecting *Polyscias balfouriana* cuttings during the above mentioned rooting process was also identified and methods of controlling the disease were also studied.

Investigations conducted as student research programmes have also indicated the following results. Best rooting medium and best cutting sized of *Ficus benjamina* for propagation through cuttings were sand + coir dust mixed in a ration of 1:1 with 10" long top cuttings. Best rooting medium and best cutting size for *Cypressns spp.* were sand + coir dust mixed in a ration of 1:1 and 4" long top cuttings.



Ficus benjamina

d. Post harvesting techniques

A trial initiated on extending the vase life of cut *Nelumbium* (Lotus) flowers has revealed that best results were obtained when flowers were treated in a dipping solution of Clorox (0.4%) + CaSO₄ (200 mg/l) + Soda (1% i.e. 10 ml /l).

An investigation initiated on extending the vase life of cut leaves of *Calathea zebrina* using low cost dipping solutions, has shown that sucrose (02%) + Tween 20 (0.02%) was the best dipping solutions while there was no significant difference with leaves treated with 02% sucrose + 2.5% citric acid and 1.5 % NaOCl + 200 mg/l CaSO₄.



Nelumbium (Lotus)

6.2.1.2. Plant breeding

Several Plant programmes were carried out especially for native plants, Orchids and Anthuriums in order to produce new crop varieties or lines with desirable properties such as colour, yield, quality, tolerance, etc.

General maintenance activities were carried out for all native plants in the collection including seedlings from various crosses. The following plants were also propagated: *Exacum affine*, 50 plants through seeds, *Chirita* spp., 150 plants through cuttings and 50 plants of *Impatiens* spp. through cuttings.

When *Chirita* spp. was propagated through leaves; early emergence of plantlets was observed in leaves placed horizontally on the medium. Highest number of plants was observed on leaves cut in to 03 pieces.

16 Orchid seed pods were germinated in the laboratory.

In addition to the above researches there is a research being done on Endiphytic fungi in tea and their secondary metabolites for producing beneficial chemical products as secondary metabolites by isolation of entophytic fungi associated with plant tissues.

Seven research publications were published this year related to floriculture issues. (Refer page 77 more details)



Chirita sp.

6.2.2. National Floriculture Development programme

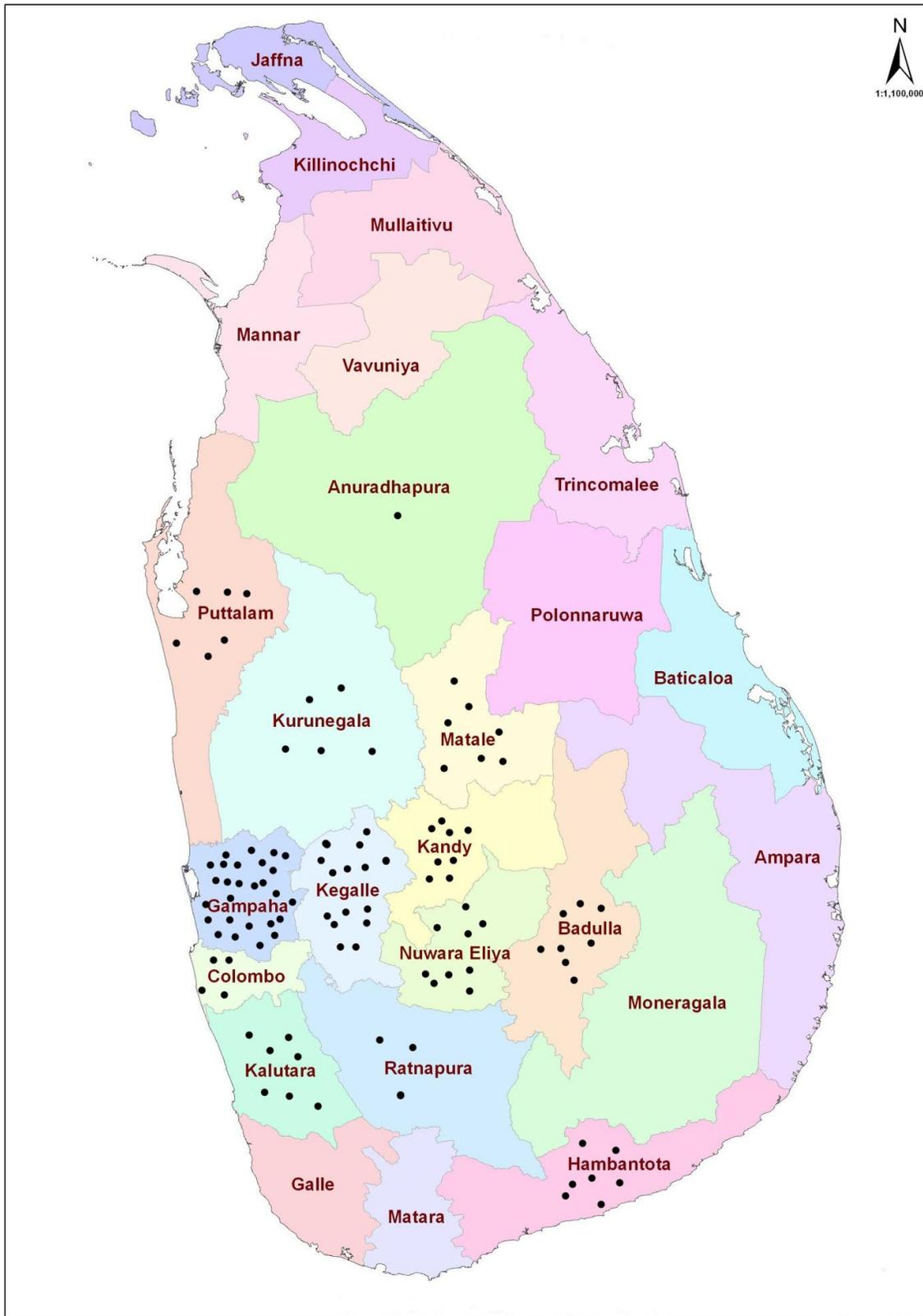
The National Floriculture Development programme (“Suwahas mal” programme) initiated in 2005, which is aimed at floriculture development in the island, was continued this year towards achieving its objectives. There are 3 main objectives of the programme and they are listed below;

1. Organization of growers
2. Empower organized farmers
3. Develop market linkages and facilitate marketing their products

District	No. of Societies
Kandy	07
Matale	06
Kegalle	14
Kurunegala	04
Gampaha	27
Kaluthara	07
Colombo	04
Ratnapura	04
Hambantota	05
Anuradhapura	01
Badulla	06
Nuwara Eliya	09
Puttlum	06
Total	100

Distribution of farmer organizations district wise

During this year many activities were carried out to increase farmer organization with actively engaged growers in the sector; empower lower and middle level nurserymen/growers who are already in the sector by providing assistance in the form of material, equipment and infrastructure development to successful production of profitable crops; Provide marketing assistance for uplifting their economic standards. Floriculture Research and Development Unit of the Department actively involved in performing these activities in collaboration with other units.



Distribution of Suwasas Mal Growers' Societies Island wide

6.2.2.1 Increase grower organizations

Three new farmer organizations established under the programme during this year make 100 total farmer organizations in floriculture Sector Island wide in 06 provinces, in the following districts mentioned in the table and the map above.

6.2.2.2. Empower organized growers

a. Training and workshops

Workshops were conducted for potential growers on floriculture to provide technical know-how and capacity building of farmers.

District	No. of Workshops	No. of Participants
Gampaha	01	40
Kandy	01	61
Matale	01	65
Puttalam	01	50
Kegalle	20	828
Hambantota	03	128
Nuwara Eliya	03	65
Total	30	1237



Workshops held for the training of growers

b. Provide onsite advises

Onsite advises were provided for problems arise during the work in the field while monitoring the growers' plant nurseries and attending for several meetings.

District	No. of Nurseries
Gampaha	450
Kandy	42
Matale	32
Puttalam	13
Kegalle	244
Kaluthara	89
Hambantota	01
Nuwara Eliya	189
Total	1060



Nurseries visited for onsite advice

416 monthly meetings were held in the Gampaha, Matale, Kandy, Kegalle, Nuwara Eliya, Kalutara, Hambantota and Colombo districts discussed growers' issues related to the floriculture.

Members of "Suwas Mal" societies in Gampaha and Kegalle districts were taken on 11 field trips to visit other well maintained plant nurseries in various places to observe and gain better knowledge and field experience.

c. Short term training sessions on floriculture

Short term training programmes were conducted on cultivation of Anthuriums, Orchids, Gerbera & Cut greens for growers involved in floriculture to disseminate relevant up to date knowledge of cultivation issues.

Subject	Duration	Number of Classes	No. of Participants
Orchid Cultivation	01 day classes	42	1,439
	Practical trainings	23	132
	Out station visits	8	533
Foliage plants Cultivation	01 day classes	42	1,460
	Practical trainings	24	124
	Out station visits	13	623
Anthuriums Cultivation	01 day classes	46	1,772
	Practical trainings	26	86
	Out station visits	9	637
Gerbera cultivation	01 day classes	14	346
Tissue culture	05 days classes	10	74
Total		257	7,226

d. Lectures and other training programmes

Floriculture related lectures and programmes conducted at Floriculture Research and Development Unit

- Introductory lectures and demonstrations on tissue culture were conducted for 128 students.



Conducting training programmes at Hakgala for group of growers

- Lectures on the cultivation of floriculture crops for export as well as on the cultivation of Anthuriums were conducted for 60 & 20 growers attached to the Gampaha District Flowering and Exotic Plant Producers Association.
- A lecture on cultivation of ornamental plants, orchids and anthurium in the western province under rain shelters was conducted for 15 officers of the Western Provincial Dept. of Agriculture the ISTI Bombawela.
- Two training programmes on the cultivation of foliage plants under rain shelters as well as Bonsai were conducted for in-service training programmes held at Bombawela for Agricultural Instructors attached to the Dept. of Agriculture; 45 individuals from the Colombo district and 25 from Kaluthra district participated.
- A training programme on the cultivation aspects of orchids, anthuriums and foliage plants was conducted in the Tamil medium for 28 students; and a lecture demonstration was also conducted for 28 students from the Easter Province University of Sri Lanka.
- Training programs on Bonsai was conducted for 36 participants of MAS Holdings Pvt. Ltd. at the D.T. Ekanayake Auditorium and 30 participants at Kegalle for officers attached to the department of agriculture in the district.
- A practical demonstration on pollination of anthuriums, orchids and gerbera was conducted for 24 undergraduate students from the Department of Botany, University of Peradeniya.
- A lecture on general aspects of investing in the floriculture industry and advantages in taking up the cultivation of ornamental plants as a self employment venture was conducted for 20 individuals at the Department of Agrarian Services, Peradeniya

Floriculture related training sessions conducted at the Hakgala Botanic Gardens

Description	No. of participant	Institute / description
Floriculture	43 students	NAITA
	46 growers	Nuwara-eliya and Uva province
Floriculture and landscaping	30 students	University of Peradeniya
Cultivation of Roses and Gerbera.		Diyathalawa Suwaha Mal association
Cultivation of Gerbera, Post harvesting technologies, Pest and Disease Management, cultivation of Roses, cultivation on Pipsopila, Green house Technology.	92 growers	Nuwara-eliya district
Cultivation of Gerbera, Post harvesting technology, Cultivation of Roses, Cultivation of Carnation	83 growers	Nuwara-eliya District
Cultivation of Roses	16 growers	Kappetipola and Dambawinna area

Description	No. of participant	Institute / description
	16 students	Training institute of Agriculture in Nawayalathenna
Cut flower industry.	15 undergraduates	Ruhunu University
Cut flowers and cultivation of Chrysanthemum.	15 trainees	Agricultural Deputy Director's office, Nuwara-eliya
Cultivation of Gerbera, Roses, and Chrysanthemum.	80 individuals	from small plantation entrepreneur development programme
Potted plants production	26 growers	Keppetipola Suwasas Mal organization
Cultivation of Gerbera, Roses, Carnations, Chrysanthemum, Gladiola and Green house Technology	78 growers	Nuwareliya district
Cultivation of Roses, ornamental plants and landscaping	43 Diploma students	Pelwehera Agricultural School
Cultivation of roses, Gerbera and Carnation with practical session.	05 Air force officers	Diaythalawa

Floriculture related training sessions conducted at the Gampaha Botanic Gardens

Trainings on the cultivation of Gerberas, Anthuriums, Orchids and Foliage plants, Roses were conducted for 59, 211, 290, 207 & 25 individuals respectively. A training programme on Foliage plants was also conducted at the Ja-ela Divisional Secretariat office for 83 participants.

A workshop on cultivation of floriculture crops under protected structures and hydroponics was conducted for 55 school students and 08 teachers.

A training programme on cultivation of *Dracaena sanderiana* was conducted for 83 participants at the Botanic Gardens, Gampaha with private sector growers from two commercial nurseries participating as resource persons.

e. Publications

Information of cultivation of floriculture crops was available for growers by printing different types of informational materials.

4000 copies each of 04 Newsletters and 1000 copies each of Leaflets on 11 different topics (i.e. Aglaonema, Cannas, Chrysanthemum, Roses, Oncidium, Foliage Anthuriums, Potted Anthuriums, Dahlia, Calathea & Maranta, *Dracaena sanderiana*, Bromeliads) were printed for free distribution and sale respectively.



A booklet on “Floriculture Research and Development activities of the Department of National Botanic Gardens” was also printed and published.

Books on the cultivation of Anthurium, Orchid and Dehlia were revised with new information and new photographs. One thousand copies of the book on Anthurium and 1500 copies each of the books on Orchids and Dahlia were printed and are ready for sale.

One thousand copies of a new book on cultivation of 25 ornamental plants and cut flowers were also printed and published.

f. Provision of materials, equipment and infrastructure facilities

Infrastructure facilities, high quality plants and other planting materials were provided for farmers to build their capacity.

Over 300 rolls (each roll consisting of 3x100 m) of shade netting were distributed to members of 74 grower associations in Kandy, Matale, Colombo, Kalutara, Puttlum, Gampaha, Kurunegala & Hambantota districts and in Balangoda.

UV treated polythene (60 rolls - 48,000 sq. m) was distributed to members of 15 grower organization in the Badulla and Nuwara Eliya districts.

Under the Divi naguma programme distribution of material (i.e. GI pipes, Shade netting and plants) for infrastructure development and nursery establishment was completed in three phases. Documentation of material distributed has also been completed. Approximately 143 acres of land have been

brought under shade for the cultivation of *Dracaena sanderiana*. A total of 169 growers were provided with material to the value of Rs. 76,111,604.00. Selected growers are distributed as 94 in the Gampaha district, 65 in the Kegalle district and 10 in the Colombo district. Further evaluation and monitoring of progress is continuing.



Distributing shade netting for growers in Hambantota



A *Dracaena sanderiana* cultivation established under Divi naguma programme

120 potted ornamental plants were issued to a group of growers in the Eastern province subsequent to a training programme conducted at the Eastern University.

6.2.2.3 Marketing assistance

Small scale exhibitions and District levels large exhibitions were also conducted to enhance the marketing capabilities of growers in floriculture.

District	Small localized	Large District Level
Gampaha	33	02
Kandy	15	01
Matale	01	01
Kegalle	37	-
Hambantota	05	01
Puttlum	02	01
Badulla/	01	-
Kaluthare	04	03
Colombo	05	-
Kurunegala	04	01
Ratnapura	02	
Total	109	10



Exhibitions and plant sales organized for growers

6.2.3. Floriculture development activities at gardens

With the assistance of Floriculture Research and Development unit at Peradeniya flowing activities were conducted at Gampaha Botanic Gardens..

- Initiation of cultures and subculture was continued for micropropagation of Anthuriums and Orchids (Dendrobium). General maintenance was carried out for Fern, Gerbera and Water



plant collections. 736 community pots of seed culture and mericloned orchids were produced, of which 525 community pots and 641 numbers of 2” size individual pots were sold.

- 4,600 Anthuriums and 2,425 Sq. m (808.5 m length x 3 m breadth = 2425.5 sq. m) of black nylon netting were distributed among 115 (73 and 42 individuals respectively for plants and netting) recipients under the Liya Abiman Programme. A training programme/workshop were conducted for 168 self employed women on cultivation of Anthurium and ornamental plants in the area under ‘Liya Abiman’ and ‘Divi Naguma’ Programmes to uplift their knowledge and provide technical and other skills.



Some of the Orchids bloom in Hambantota Garden’s nurseries

- Officers visited the Meerigama Air Force Base to provide on-site advice on the cultivation of Orchids at the base. 20 persons personally visited the unit to obtain information on various aspects of investing in the floriculture industry and initiating nurseries.

Flowing activities were enhanced at Mirrijawila Dry Zone Botanic Garden and Illukovita Wet Zone Botanic Garden to facilitate the growers of the area with the assistance of Floriculture Research and Development unit at Peradeniya

- Planting and further maintenance were continued for all the net houses constructed for the cultivation of Anthurium, Orchids and Foliage



Construction of floriculture extension office

plants. A cactus collection was initiated and 1,221 cactus plants from Royal Botanic Gardens, Peradeniya were transferred to the dry zone Botanic Gardens at Mirijiwela.

- Orchids imported from Thailand last year are flowering and 509 spikes of Orchids at dry zone Botanic Gardens were harvested and transported to Peradeniya for display at the Orchid Show House.



Conducting training session for growers in Hambantotoa

- Floriculture development activities were also continued at the Wet Zone Botanic Garden to facilitate the growers of the area and living collection of the garden was enhanced by planting programme and plantation of *Draceana sanderiana*, Anthurium, Orchids were completed in protected houses successfully. About 1,000 cuttings were produced by the plantation of *Draceana sanderiana* were distributed among the growers around the area to popularize cut foliage cultivation and capacity building of growers of the area. Anthuriums and orchids, under polytunnels were maintained satisfactorily. Culverts and retaining walls of lakes were set up and temporary garage was established near the poly tunnel at the garden.



Field office at foliage plant nursery, Peradeniya

- Around 350 Orchid plants were imported from Thailand to enrich present germplasm collections.
- 345 wild Orchids were added to the native Orchid collection at the Orchid nursery. These plants were provided to the Botanic Gardens subsequent to a court case with regard to the collection of these plants from the wild by un-authorized visitors.
- A disease condition affecting almost all flowers of the Orchid section was observed, the causal organism has not been fully identified as yet. Applications of various fungicides have not yielded a positive result for disease control. Work on identification of the causal organism and on disease control is in progress.

6.2.4 Upgrading floriculture sections

Two shade net houses were established and the floriculture extension office was also established at Dry Zone Botanic Garden.

Construction of a building consisting of workers rooms, stores and a field office were commenced at the Orchid nursery and construction of a workers rest room and stores has also begun at the Floriculture unit of the Botanic Gardens, Gampaha. Construction activities initiated last year of the field office and workers room at the foliage plant nursery was completed and is in use.



Constructions at orchid nursery field office, Peradeniya

6.3. Education and Training

Mahinda Chinthana: Vision for Future- 10 year development framework – theme under the Technical & Vocational Education

Statement: “Skills for life-jobs for skills”; providing nationally and internationally recognized training in keeping with advancing technology meeting the demand of labour markets both domestic and abroad.

The Department of National Botanic Gardens carried out activities towards providing opportunities for youth and interested individuals who are engaged in floriculture sector by offering an externally accredited one year National Diploma Course and 2 year Higher National Diploma course in Floriculture and Landscape Gardening/design to gain higher qualification with job oriented training. These courses are envisage to fill the gap in the market by offering opportunities for young floriculturists seeking higher qualifications and providing training opportunities for the local gardeners seeking foreign employment

Short Term (One-day, two-day) training sessions and a Three-month certificate course on Floriculture and Landscape Design are also conducted by the department for the public, school leavers, small businesses, students and other specialist audiences.

In 2012 the education and training centre of the department was involved in conducting and organizing the training over 4000 programmes on Tree Care & Maintenance, Landscaping, and Floral Decorations and other related areas of plant conservation. (For training conducted on biodiversity conservation, plant conservation & systematics and floriculture please refer page 43-45 & 51-53 respectively)

6.4 Tourism promotion by upgrading Gardens facilities

Mahinda Chinthana: Vision for Future- 10 year development framework

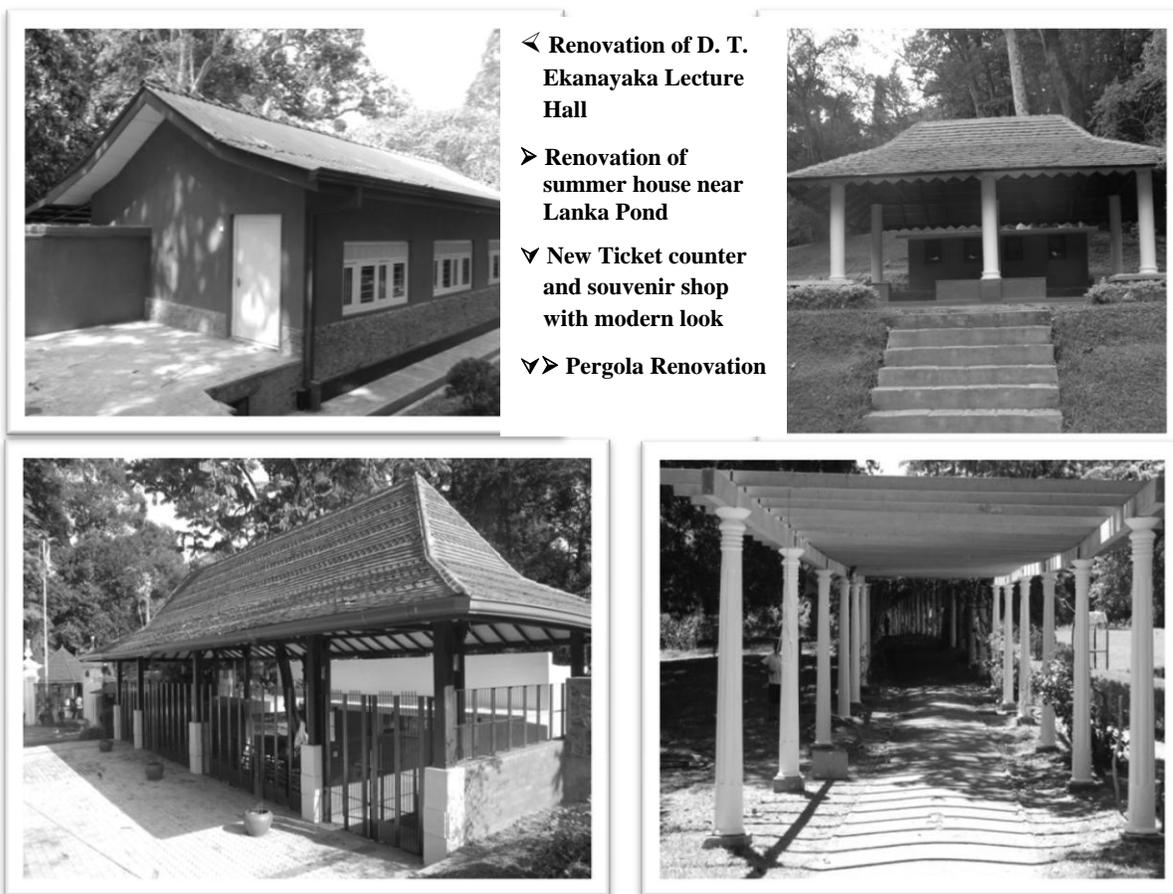
Statement: "Tourism products will be diversified with special emphasis on eco-tourism, tapping the tourism potential of the natural topography and ecological values of the country."

Maintaining, improving and developing activities at the Botanic Gardens were carried out during this year as planned to keep up the quality of the gardens; the range and beauty of the plants and to enhance the experience of visitors.

Flowing activities were carried out at the gardens in order to maintain their standards.

6.4.1. Development activities at Royal Botanic Gardens

Internal road network of the garden was upgraded to enhance the landscape features and quality of the roads. Constructions of A New Ticket Counter with a modern look and with access to disabled people and new souvenir shops were completed.



Construction of a net house was commenced with the object of better management of the plants. Irrigation system was established at borders and flower section of the garden for efficient water supply for plants.

Culverts and drainages of some section of the garden were renovated. Renovation of summer houses, toilets, Labour quarters and officer quarters and other structures were carried out to enhance the beauty and standards of the garden.

New machineries, equipment, garden tools were purchased for efficient management of the Garden landscape features.

Private security system was established at the garden this year for better services.

Construction of a net house was commenced with the object of better management of the plants. Irrigation system was established at boar

6.4.2. Development activities at Hakgala Botanic Gardens



Newly developed rock garden

Carpeting of main road and upgrading of roads with slab laying in some sections were carried out to improve the road system and enhance the standards of the garden. Existing poly tunnels were renovated and installed drip fertigation systems for poly tunnels in the nursery for better management of plants.



✔ Upgraded foot paths



▲ Renovated poly tunnels

Boundary fence of the garden was renovated and steps were taken to demarcate the boundary of the garden to establish a chain link around the garden to prevent the damage from wide animals.

Rehabilitation of summer houses, office building, ticket counter, ponds and toilets were carried out to improve the landscape features and the standard of the garden.

The Garden put up their best display with temperate annual flowers, Roses and Orchids during mid March to the end of April for the Nuwara Eliya season period this year which is best time to see the gardens. Garden was well maintained as well as land improvements and upgrading landscape features were carried out at the garden to beautify the garden.

Composting site was established to use garden waste sustainably as fertilizes/soil conditioner.

New machineries, equipment, garden tools were purchased for efficient management of the Garden landscape characteristics.

6.4.3. Development activities at Gampaha Botanic Gardens

Internal road network of the garden was upgraded by carpeting (90% of the total area is covered under this) to enhance the landscape features and quality of the roads.

New play equipment were added to the play area of the garden for expansion of the facilities to the public in different categories.

Renovation of drainage system of the quarters was also completed. Construction of new car park and renovation of culverts is being carried out. Renovation of pump house was completed. Other land development activities were



Upgraded internal roads



Renovated tree house

carried out to improve the

scenic beauty of the garden. Renovation of structures, machineries and equipment were carried out as well for better maintenance.

New machineries, equipment, tools were purchased for efficient management of the Garden beautification.

6.4.4 General maintenance, renovations and purchasing of the National Herbarium

A refregartor was purchased to store lab chemicias and specimens. Laboratory equipments such as hand lenses, desecting microscopes were purchased for successful scientific studies. Renovation of roof

of classical collection building is being carried out and renovated the wash rooms to the modern look.

6.4.5. Development activities at Medicinal Plant Gardens, Ganewatte

The garden was maintained satisfactorily and improvements to the garden were carried out by land improvement, road development, buildings and structures constructions, etc to enhance the outlook.

Main road was upgraded to provide better access and the internal roads were upgraded to enhance the quality and the standards of the garden.

3rd phase of construction of the boundary fence was carried out to protect the valuable trees planted in the garden.

The 2nd phase of construction of the plant house was carried out and 95% of activities were completed during this year. Construction of staff quarters was carried out by Provincial Engineering Office in North Western Province.

Land improvement activities were carried out at the gardens in some sections to improve the scenic beauty of the garden and sustainable utilization of the land.

Planting programme was continued with adding new plant collections and upgrading the existing collection. 458 plants were added to the garden and

Improvements to the medicinal plant collection as Inguru, Arattha, etc. were carried out for commercial production.



Upgraded internal roads



2nd phase of the plant house

SPECIAL EVENTS AT THE BOTANIC GARDENS

7.1. INTERNATIONAL CONFERENCE

The Garden hosted an international conference on forest restoration from July 16-17. The conference on Restoring Forests in Human Dominated Landscapes of the Wet Evergreen Region, South Asia, was organized by the Environmental Leadership and Training Initiative (ELTI), a joint initiative of the Yale University School of Forestry & Environmental Studies and the Smithsonian Tropical Research Institute (<http://environment.yale.edu/elti/>).



Deyata Kirula Exhibition in Anuradhapura

12th February 2012. as well as installed a stall with plants and plant related products for display and information was disseminated on site to the public.

7.2. NATIONAL SYMPOSIUM ON FLORICULTURE RESEARCH (NaSFloR)

The National Symposium on Floriculture Research (NaSFloR) 2012 was organized and conducted on 17th of December in collaboration with the Sri Lanka Council for Agriculture Research Policy (CARP). The proceedings of Symposiums held in 2010 and 2011 were printed and distributed at the Symposium.



Discussion session in International Conference on Forest Restoration

Twenty presenters, including notable professors and practitioners from throughout the globe, participated in the conference to discuss the latest research in forest restoration for South Asia.

Officers of the department provided expertise to the exhibition site in Dayata Kirula National Exhibition held parallel to the 64th Independence Day in Anuradhapura from 4th to



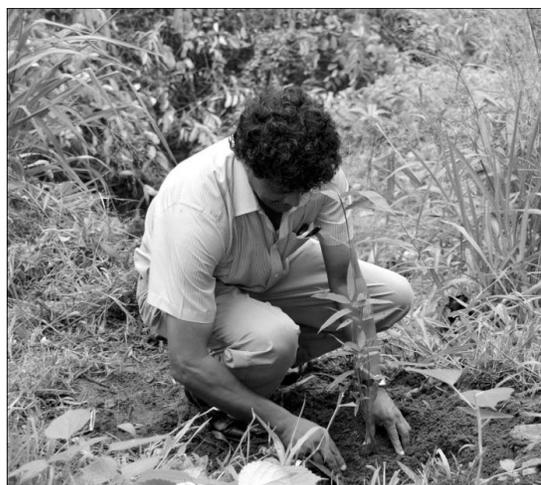
16 demand-driven research papers were presented at the NaSFloR 2012 with reference to the floriculture industry by officers attached to various departments, private sector institutions as well as students from universities.

It was a fruitful session where gathered the researchers and clients in the private sector who involved in the industry both together and had a successful discussion forum.

7.3. OTHER ACTIVITIES

100 plants of *Dendrocalamus hookeri* were planted in river drive of the Royal Botanic gardens, Peradeniya on 15th of November, 2012 under the “Dayata Sevana” programme organized parallel to commemorate the birth day of the H.E. the President.

White and Pink Olu plants were introduced to the Lanka pond and applied Kumudu Plants to the pond near Orchid House. Smart bed edging were fixed for



“Dayata Sevana” Tree Planting Programme

15 flower beds in Flower garden.

Officers participated for National Agricultural Exhibition in Gannoruwa and disseminated information on floriculture for interested growers.

Officers from the floriculture unit in Gampaha Botanic Gardens organized and manned an exhibition stall of the Department of NBG at the “Dakshina Navodaya” exhibition held at the Dept. of Agriculture in-service training centre and farm at Labuduwa.

Officers participated as judges for the Flower Show held at Nuwara Eliya as part of the seasonal festivities.

Officers were involved in organizing a stall of the Department of National Botanic Gardens at the exhibition held at Gunnoruwa to mark 100 yrs of the Department of Agriculture.

ADVISORY SERVICES PROVIDED BY THE DEPARTMENT

8.1. LANDSCAPE GARDENING

Advisory programmes on Landscape Gardening for different institutions were conducted. The list of Institutions is shown below,

- Assistant Indian High Commissioner Residence in Kandy
- Government Agent office in Anuradhapura
- Tourist Resort in Pasikuda
- Prison, Pallekele
- Haritha Piyasa training center in Meegalawa
- Training Institute of Administration and Development in Pilimalawa.

Officers of RBG provided their expert knowledge to develop Hambantota Botanic garden while involving in Landscaping & Gardening at the garden.

Actively participated in “Sundara Gampaha” programme for providing advices for beautification the city area and enhance the landscaping feature of the Gampaha area.

Conservation project of Railway station, Henerathgoda, Sacred land development project in Pillikuttuwa, Land development project in Gampaha Hospital and Dadugam oya Project were carried

Technical advices were provided to landscape the Provincial Educational office premises, Minuwangoda, Engineering Technology Institute, Katunayake , Kappettipola Maha Vidyalaya premises, Mudungoda, Ysodara Devi Balika Vidyalaya, Gampaha, and Magistrate court complex, Kadawatha.

8.2. FLORICULTURE

Free advice on matters related to commercial floriculture, nursery management, pest and disease management as well as *in vitro* propagation was disseminated to 896 individuals personally visiting this unit or by post. 62 school children were facilitated for carrying out their projects on Orchids and Anturium.

8.3. AUTHENTICATION AND DISSEMINATION OF BOTANICAL INFORMATION

Accurate botanical information on plants and other related areas were disseminated to the general public, students, government institutes and private organizations where as necessary.

1116 people (school children, University students, etc.) visited the Herbarium including 42 foreigners from different institutions to observe the functions and gain knowledge on herbarium techniques & management and also for research purposes.

81 letters were answered on botanical information requested by the public and other related parties.

1,183 flowering plant species, 103 fern specimens and 05 bryophyte specimens were identified for government and non government institutions.

18 plant species were certified and deposited as voucher specimens for studies in Aurvedic extractions conducted by Nature's Secrets plant Research Centre.

Crotalaria juncea was deposited as a voucher specimen collected by an under graduate student of Faculty of Science, University of Peradeniya,

10 plant species were certified and deposited as voucher specimens for studies in Aurvedic extractions conducted by Hettigoda Industry.

Two specimens of *Taraxacum javanicum* were certified and deposited as voucher specimens collected by post graduate student of PGIA, Peradeniya. A specimen of *Cymbopogon nardus* was authenticated for Institute of Fundamental Studies, Hantana

A specimen of *Psychotria sarmentosa* collected by post graduate student of University of Colombo was authenticated and deposited in the Herbarium.

56 *Santalum album* and 12 *Gyrinops walla* wood anatomical slides were prepared for identification of wood samples handed over by Department of Forest for a legal purposes.

DEVELOPMNET ACTIVITES OF OTHER UNITS /PRGRAMMMES

9.1. RESIDENTIAL GARDENS OF H.E. THE PRESIDENT AND HON. PRIME MINISTER

Residential gardens of H.E. the President in Temple Trees, Colombo 01, Kandy, Nuwara Eliya, Anuradhapura and residential gardens of Hon. Prime Minister in Colombo, and Nuwara Eliya were maintained at high standards.

Development activities were carried out at both Residential gardens of H.E and Hon. Prime Minister's residential gardens to beautify the gardens and enhance standards of the gardens as planned.

Internal foot paths in these gardens were upgraded and some sections of the gardens were improved. Landscape features of all the gardens were enhanced by adding flower borders, flower beds and vegetable beds.

New structures were added to the Hon. Prime Minister's residence gardens in Colombo for keep the outlook attractively.

Equipment, machineries were purchased for landscaping purposes and other gardening uses.

Flower, vegetables and fruits plants nurseries were maintained and successfully and supply of flowers,



Vegetables and fruits grown in Temple trees garden



Vegetables and fruits grown in Hon. Prime Minister's residence garden

vegetables and fruits when necessary for in house purposes and other official events in the residence was continued.

Removal of decaying trees was carried out and fallen trees were removed from the residential garden of H.E. President in Kandy. Rose garden of the H.E. the president's residence in Nuwara-Eliya was upgraded. Two natural ponds in the garden of Hon. Prime Minister's residence in Nuwara eliya were renovated and a poly tunnel of the garden was renovated

9.2. COMMONWEALTH WAR CEMETERIES

The Commonwealth war cemeteries are maintained for the commemoration of Commonwealth of Nations military service members who died in the two World Wars.

The Commonwealth War Cemeteries at Kandy, Jawatte, Borella and Trincomalee were maintained at high standards as planned during this year.

Activities carried out at the war cemeteries are as follows; Turf renovation was completed at Jawattha war cemetery and first phase of turf renovation with *Zoysia* grass was completed at Borella cemetery as well as electricity facilities were obtained for mess rooms in both cemeteries respectively. The hedge stone borders of first section at Jawattha were completed. New sod-cutter machine and three new hedge-cutter machines were obtained from Commonwealth War Graves Commission. The plans were prepared to stop the soil erosion at Kandy war cemetery by constructing 50m long Gabion wall and 130m long concrete drainage channel. The second phase of turf renovation (1200m²) was completed using Santana grass (*Cynodon dactylon*) at the Trincomalee cemetery.

Department of National Botanic Gardens received the total authority of the operational responsibility of Common Wealth War Cemetery, Trincomalee in November 2012. The service of Mr. Christopher Worthing from MBE was terminated on 30th Oct. 2012. Mr. Worthing was looking after the, Trincomalee War Cemetery during the last decades in the troubled period.



Kandy War Cemetery

Jawatta War Cemetery



Turf renovation at Jawatta War Cemetery



Trincomalee War Cemetery

9.3. BOTANIC GARDENS TRUST FUND

Botanic Garden Trust Fund was set up by Cabinet approval on 07th February 1996 for developing botanical gardens and its welfare considering a cabinet memorandum submitted by the Minister of Agriculture, Lands and Forest Resources on 15th December 1995.

25% out of the annual income from ticket sale at botanical gardens is allocated for the Trust Fund to improve botanical gardens and its welfare, which is the main income source of this Fund.

Main objective of the fund is to provide financial assistance for development activities at botanical gardens and extend financial assistance for recurrent activities when necessary. The objectives of the trust funds are;

- Promoting botanical gardens in Sri Lanka within the country and in other foreign countries
- Implementing significant programmes on education programmes and plant conservation
- Improving facilities and activities leading to broad base scientific know-how of scientists attached to the botanical gardens as well as extending financial assistance to purchase equipments needed
- Formulating an extensive programme on plant collection
- Providing financial assistance for improving technical, education & training activities as towards the development of the botanical gardens
- Undertaking any urgent construction to facilitate scientists and special delegates visiting the botanical gardens
- Covering recurrent expenditure at any given specialized programme

Development activities 2012

During year 2012, several development activities carried out at gardens with the financial assistance of Botanic Gardens Trust fund are listed in the table below.

	Development Activity	Unit
1.	Developing facilities and beautifying activities of botanic gardens were carried out to enhance the standards of gardens	Royal Botanic Gardens, Peradeniya, Hakgala Botanic Gardens, Gampaha Botanic Gardens
2.	Upgrading internal road network	-Do -
3.	Renovation of labour quarters and construction of workers' shed to enhance facilities of workers for improving environment around them.	Royal Botanic garden, Peradeniya
4.	Carrying out scientific research activities	National Herbarium
5.	Purchasing new laboratory equipments for further improvements of the scientific activities.	-Do-
6.	Purchasing planting materials	Royal Botanic Gardens, Peradeniya, Hakgala Botanic Gardens,
7.	Purchasing new books and printing informational materials	National Herbarium Royal Botanic Gardens, Peradeniya
8.	Renovation of Education center	Royal Botanic Gardens, Peradeniya
9.	Renovation of the roof	National Herbarium

Annual capital allocation for year 2012 of the trust fund was Rs. 81.9 million and Rs. 79.2 million (97%) was utilized for development of Botanic Gardens this year.

9.4. MEEGALLAWA - HARITHA PIYASA

Meegallewa Haritha Piyasa is situated in the north-western province about 60 miles away from Kurunegala. The property of Harith Piyasa is 6 acres in extent. In 2008, the land belonging to the Sri Lanka Mahaweli Authority was obtained by the Line ministry for developing as a center for training and plant production. Development project of Megallawa Haritha Piyasa was initiated during year 2011 and continued in 2012 as well. The primary purpose of this project is to develop the site as a training center to provide in service training for the internal staff and training local communities on Floriculture. It is also planned to establish a plant production centre for enhancing the plant production activities while making this as a self sustain training centre.

During this year the water supply system was initiated by establishing a well and irrigation system at the premises was carried out. Estimates were prepared for the development activities planned for next year.

UPGRADE LIBRARY FACILITIES

Scientific Books were purchased newly and added to the library collection for improvement of reference in the library.

1. Ranasinghe, D.B. 2011. Sojourns in vanishing jungles in Sri Lanka. NTD Association, 27/68, Vijaya road, Kolonnawa.
2. Senanayake, R. 2010. Exotic medicinal plants in Sri Lanka and their uses. vol 1, Neoprinters, Sri Lanka.
3. Gunasekera, L. Invasive Plants. Print & print Graphisc (Pvt.) Ltd, Maligawatta, Colombo 10, Sri Lanka.
4. Misra, S. 2004. Orchids of Orissa. Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
5. Misra, S. 2007. Orchids of India. Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
6. Fraser-Jenkins, C.R. 1977. New species syndrome in Indian pteridology and the ferns of Nepal. International Book distributors, Dehra Dun, India.
7. RHS Colour Chart 2007 5th edition. The Horticulturist Society, PO Box 313. London

STAFF TRANSFERS, RETIREMENTS, PROMOTIONS AND TRAININGS

11.1 ROYAL BOTANIC GARDENS, PERADENIYA

Mrs. Srimathee Madawala was transferred as per the service requirement to Education and Training Center of Royal Botanic Gardens, Peradeniya on 23rd July 2012.

Tree cutter Mr. K.M. Senevirathne Banda was transferred to Gampha Botanic Gardens on 23rd of August 2012.

Mr. U. Wimalasena, Assistant charge collector retired on 11th of March 2012.

Mr. D. Chandrarathne Perera and Mr. P.G. Dharmasena Labourers retired on 29th of March 2012 and on 10th of April 2012 respectively.

Mr. Sunil Weerasinghe, Mason retired on 01st of July 2012.

(Mrs.) Malkanthi Rathnayake, Management Assistant obtained a promotion as Administrative Officer at the Technical College, Aruppola on 23rd July 2012.

11.2. FLORICULTURE RESEARCH AND DEVELOPMENT UNIT

While Mr. I. W. M. Karunaratna obtained a transfer to the Department of Agriculture Ms. Nimali Perera joined this unit as a graduate trainee to carry out extension activities related to floriculture in the Kegalle district.

11.3. NATIONAL HERBARIUM

Mr. H.M.U. Weerasekera, Labor Grade 111 was transferred to Floriculture Research and Development Unit, RBG

11.4. HAKGALA BOTANIC GARDENS

Mrs. S.R. Tanthirige, Management Assistant got a transfer from the garden on 22nd October 2012.

Mr. A. Magalingam retired on 13th September 2012.

11.5. GAMPAHA BOTANIC GARDENS

Ms. G.L. Swarnalatha , Labour (Grade 111) was retired.

Ms. K.L. Dharmadasa assumed duties at the garden as a transfer

Ms. C.S. Thenuwara, Management Assistant (III) transferred from the garden as a mutual transfer with Ms. K.D.L. Amarasinghe and Ms. K.D.L. Amarasinghe assumed duties at the garden.

11.6 TRAINING AND CAPACITY BUILDING OF THE STAFF

	Description	Institution	Country	Staff trained
1	Housekeeping , food & beverage	Sri Lanka Institute of tourism and Hotel Management	Sri Lanka	Care takers of Circuit bungalows at Botanic Gardens
2	Public Procurement procedures	Skills Development Fund Ltd., Nipunatha Piyasa	Sri Lanka	Curator, Gampaha Botanic Gardens and AD, Suwas Mal programme
3	Secretarial Practices	Skills Development Fund Ltd., Nipunatha Piyasa	Sri Lanka	Secretary to the DG
4	Bid Evaluation	Sri Lanka Institute of Development Administration	Sri Lanka	Curators, Gampaha and Peradeniya Botanic Gardens
5	Public Financial Management for non financial mangers	Sri Lanka Institute of Development Administration	Sri Lanka	Curator, Gampaha Botanic Gardens
6	Design principles on waste water collection, treatment and disposal systems and storm water drainage management	ICTAD	Sri Lanka	Civil Engineer
7	Productive concepts and activities	National Institute of Labour Studies	Sri Lanka	04 Management Assistants
8	Training on Conversion of Salaries	Sri Lanka Institute of Development administration	Sri Lanka	03 Management Assistants
9	Training on file management	Sri Lanka Institute of Development administration	Sri Lanka	02 Management Assistants

- A one day workshop was organized for 75 workers and officers of Floriculture Research and Development unit (FRDU), Gampaha, Hambantota & Peradeniya Botanic Gardens and Suwas Mal Sevana, Colombo at the Education Centre, Royal Botanic Gardens, Peradeniya. The objective was to educate participants on administrative procedures, work ethics, production of value added plants and related products etc.
- Ms. M. C. Wickramasingha, from Gampaha Botanic Gardens and Ms. K. A. C. N. Seneviratna, Mr. Priyantha Wlikumbura from FRDU participated as resource persons for a seminar organized by the Export Development Board (EDB) for 150 participants.
- Officers from the floriculture unit of Gampaha Botanic Gardens organized and manned an exhibition stall of the Department of NBG at the “Dakshina Navodaya” exhibition held at the Dept. of Agriculture in-service training centre and farm at Labuduwa.
- Annual in-service training programme was conducted for officers and field staff as a capacity building programme and tree conservation programme was also conducted for workers of the Department of National Botanic Gardens to up lift their knowledge on plants. One day workshop was conducted on establishment code and financial regulations for 144 workers of the Department

RESEARCH PAPERS PUBLISHED IN 2012

1. Weeraratne, T. P., W. A. M. Daundasekera and **D.S.A. Wijesundara** (2012) Field survey of postharvest handling of cut flowers produced in the Up country of Sri Lanka for the local market . *Ceylon Journal of Science (Bio. Sci.)* 41 (1): 67-70, 2012.
2. Carr Gavin, David E Williams, Rukmal Ratnayake, Ratnayake Bandara, **Siril Wijesundara**, Tamsin Tarling, Aruna D Balgi, Michel Roberge, Raymond J Andersen, and Veranja Karunaratne (2012) Hortonones A to C, Hydroazulenones from the Genus Hortonia. *Journal of Natural Products.* 75(6):1189-91.
3. Jayalal, Udeni Pat Wolseley, Ce'cile Gueidan, Andre' Aptroot, **Siril Wijesundara** and Veranja Karunaratne 2012. *Anzia mahaelyensis* and *Anzia flavotenuis*, two new lichen species from Sri Lanka. *The Lichenologist* 44(3): 381–389
4. Rajapakse, Sanath, Prabasheeni Iddamaloda, Rukmal Ratnayake, **D.S.A. Wijesundara**, B.M. Ratnayake Bandara and Veranja karunaratne. 2012. Evaluation of species limits of Hortonia by DNA barcoding. *Journal of the national Science Foundation of Sri Lanka.* Vol. 40. Number 4. 345-349
5. Seneviratna K. A. C. N., M. Daundasekera, **D. S. A. Wijesundara**, S. A. Kulasoorya, B. V. R. A. K. Jayarathna, **S. A. Krishnarajah, K. N. Yapa**; Identification of causal organisms of diseases and effect of growing media on disease severity on the export oriented foliage plant *Zamioculcas zamifolia* (Lodd.) Engl. Submitted for publication in the Journal published by the National Science Foundation.
6. Banadanayake C. U. R., **S. A. Krishnarajah** and S. E. Peiris; Investigation of the most effective fertilizer combination for sucker formation and growth of *Chlorophytum comosum* L. (Spider plant) Presented at the National Symposium on Floriculture Research 2012 and accepted for publication.
7. Madurusinghe M. A. D. N., **S. A. Krishnarajah** and Yasarithna Amarasinghe; Effect of BAP and IAA on *in-vivo* Sucker Formation and Plant Development of Spider Plant (*Chlorophytum comosum* L.) Presented at the National Symposium on Floriculture Research 2012 and accepted for publication
8. Weerasekera W. A. C. S., S. E. Peiris, K. A. C. N. Seneviratna, **S. A. Krishnarajah and K. N. Yapa**; Effect of Chemical Treatments on Extending the Vase Life of *Ophiopogon intermedius* L., *Ophiopogon japonicus* L. and *Calathea lousiae* L. Presented at the National Symposium on Floriculture Research 2012 and accepted for publication

9. Rajamanthry R. G. L. N., H. M. I. Herath and Yasarathna Amarasinghe; Development of a Micropropagation Protocol for Bird's Nest Anthurium (*Anthurium hookeri*) Presented at the National Symposium on Floriculture Research 2012 and accepted for publication
10. Dassanayake D. M. I. C. B., M. K. Rubasinghe and D. I. M. Amararathna; Modification of Plant Architecture of Heen-Bovitiya (*Osbeckia octandra*) Presented at the National Symposium on Floriculture Research 2012 and accepted for publication
11. **Attanayake, A. M. A. S.**, I. M. Turner & R. M. K. Saunders (2011). Two new species of *Uvaria* (Annonaceae) from Borneo, with a new nomenclatural combination. *Novon* **21**: 161-168.
12. **Wijesundara D.S.A.**, H.S. Kathriarachchi, **S.W. Ranasinghe** and Hapuarachchi H., (2012). Analysis of Seed Plants of Sri Lanka. In: The National Red List 2012 of Sri Lanka; Conservation Status of the fauna and flora. Weerakoon, D.K. & **S. Wijesundara** Eds., Ministry of Environment, Colombo, Sri Lanka. pp. 340-345.
13. Wijesekara G.A.W., **S. Wijesundara** and **S. Ranasinghe** (2012/2011). Food Crop Wild Relatives in Sri Lanka. In: The Sri Lanka Forester (The Ceylon Forester), Vol. 32 & 33, ISSN 0258-624X, Forest Department of Sri Lanka, pp. 81-107.
14. **S. Wijesundara (2012)** .Present Status of Montane Forests in Sri Lanka. In: The National Red List 2012 of Sri Lanka; Conservation Status of the fauna and flora. Weerakoon, D.K. & **S. Wijesundara** Eds., Ministry of Environment, Colombo, Sri Lanka. x-y pp

ACTIVITIES PLANNED FOR 2013

Programme in Mahinda Chintana Policy Document	Activities Planned
A sustainable policy for environmental conservation and eco tourism promotion	<p>Continuation of the development activities of the Mirijawila Botanic gardens initiated for the conservation of low country dry zone plants:</p> <ol style="list-style-type: none"> 1. Complete establishment of main entrance complex and car park , summer houses and toilets, drinking water system to facilitate the visitors 2. Continuation of development of road network 3. Carry out floriculture nursery development activities to provide facilities for growers around the area and conduct training programmes on floriculture for public including school children 4. Planting and plants conservation programs 5. Landscape development activities. <p>Continuation of the development activities of the Avissawella, Illukovita Botanic gardens initiated for the conservation of low country wet zone plants:</p> <ol style="list-style-type: none"> 1. Completing establishment of main entrance complex with the visitor center 2. Development of internal road network 3. Carry out land development activities to enhance landscape features of the garden. 4. Enhance living collection by Planting programme 5. Develop floriculture development activities at the garden to facilitate the growers of the area
Ensuring the biodiversity conservation	<ol style="list-style-type: none"> 1. Continuation of the studies on lower plants such as lichens, bryophytes. 2. Ex-situ conservation of Sri Lankan flora. 3. Improve medicinal plant collection as Inguru, Arattha, etc.. for commercial production. 4. Carry out the Botanical survey for exploration, collection of plant specimens, mainly threatened plants of dry and wet zone. 5. Carry out scientific studies and research on plant taxonomy, diversity and other related areas 6. Continuation of conservation of trees with historic and or religious importance 7. Conducting of at least 10 field explorations by each botanic garden. 8. Continuation of computerization of herbarium specimens

Programme in Mahinda Chintana Policy Document	Activities Planned
	<ol style="list-style-type: none"> 9. Anatomical investigation of Sri Lankan plants. 10. Initiate research on micropropagation of rare and threatened plants of Sri Lanka.
Equipping farmers (in floriculture) with required technological and other skills	<ol style="list-style-type: none"> 1. Carry out relevant research programmes related to floriculture development 2. Conduct training programmes and workshops for growers to enhance their capacity on floriculture development 3. Organize exhibitions to enhance the marketing capabilities of growers in floriculture 4. Provide high quality mother plants of new varieties to the growers and introduce value added products 5. Visit plant nurseries of growers under the “Suwasas Mal” Programme to monitor and provide onsite advices for their problems arisen in the field. 6. Holding exhibitions on floriculture, environment conservation within and outside the botanic gardens. 7. Publication of leaflets, conducting TV programmes on floriculture and landscape gardening. 8. Organizing floriculture growers by setting up of Floriculture Farmer Organizations. 9. Carry out floriculture promotion programme for up lift the floriculture industry in the country. 10. Establish cut flower sales outlet in a strategic place in Colombo. 11. Conduct educational/training programmes and workshops on Plant Taxonomy and Conservation, Bio diversity and other related areas
Initiate long and short term research programmes on potential ornamental plants.	<ol style="list-style-type: none"> 1. Exploration and introduction of new variants and potential wild species at national level in collaboration with the industry. 2. Research and development of Agronomy and other aspects of newly discovered plants as well as commonly grown ornamentals. Bio fertilizer recommendations for floricultural crops 3. Research on Pre and post harvest handling of floriculture crops. 4. Conducting research on tissue culture and bio technology. 5. Research on aquatic plants with floriculture potential 6. Research on Pest and Diseases 7. Research on flower induction techniques

Programme in Mahinda Chintana Policy Document	Activities Planned
Livelihood skills development programmess	<ol style="list-style-type: none">1. Conduct intensive 3 months, 1-year and 2-year diploma courses for youth on floriculture and Landscaping.2. Providing Advisory services on floriculture, amenity horticulture and plant conservation.