SRI LANKA CONSERVATION AND SUSTAINABLE USE OF MEDICINAL PLANTS

FINAL EVALUATION

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IUCN – The World Conservation Union
Sri Lanka

October 2004

CONTENTS

EXECUTIVE SUMMARY

The Sri Lanka Conservation and Sustainable use of Medicinal Plants Project valued at US$ 5.07 and time-scaled for 5 years was initiated in June 1998, and completed in June 2004 with an extra 12 months permitted to formalize transfer of Project activities to relevant institutions. The primary objectives of the Project were conserving globally and nationally significant medicinal plant species, their habitats and genomes, and promote their sustainable use. The Project sought to achieve these objectives by promoting a series of designed activities for *in-situ* and *ex-situ* conservation of medicinal plants, and through the provision of information and institutional support. The Project identified local communities comprising all shades of people living in proximity to five specially selected Medicinal Plant Conservation Areas (MPCAs) as the target population and the primary beneficiaries.

The institutional framework, in the conservation areas, comprised Village Project Management Committees, (VPMCs) at the village level, Conservation Area Management Committees (CAMCs) at the MPCA level, and the Project Offices (POs). The Project was co-ordinated by the Project Management Unit (PMU) appointed by the Ministry of Indigenous Medicine (MIM), and was implemented in collaboration with other partner agencies such as the Department of Auyrveda, the Forest Department (FD), the Department of Wildlife Conservation (DWLC), the relevant Provincial Councils and the Divisional Secretariats (DS). The Country Office of the World Conservation Union (IUCN) provided operational support.

The socio-economic survey, the ethno botanical survey and the resource inventory survey led to the collection of very valuable data. Despite a few shortcomings in the survey process, the data collected has been considered to be of good quality. The processed information from these data sets is now incorporated in a new database established at the Bandaranaike Memorial Ayurvedic Research Institute (BMARI) which is one of the important outputs of the Project.

The baseline data facilitated mapping of resources and demarcation of forest zones. It was also the source of information for village micro plans. Various consultancy studies however, have reported that a stereotype planning process had been applied in all VPMCs, resulting in the preparation of near identical micro plans. It is also reported that planning had been largely project-driven, depriving the community of the opportunity of gaining self-confidence and a sense of ownership of the village micro plans.

The main contributions of the Project to *in situ* conservation of medicinal plants were enrichment planting of about 205 hectares, 45 kilometers of stream bank planting, establishment of fire lines, zonal demarcation of forests and substitution of wood stakes used in bean cultivation with synthetic cord. The studies on sustainable levels of harvesting were limited to 5 species as time did not permit a wider coverage.

Another successful activity was the plant propagation research, which led to the development of protocols for mass production of planting material for 22 widely used species. The publication and dissemination of information on plant propagation procedures through techno-guides was another useful output. These studies have created a new interest in home-gardens, of which there are currently over 3000. Commercial cultivation by a few local entrepreneurs has also been a

significant outcome of the research component of the Project. These activities while indirectly contributing to *in situ* conservation intensively strengthen *ex situ* conservation of medicinal plants.

The project has attempted to address the issue of Intellectual Property Rights (IPR). Although legislation on IPR was drafted and approved by a Cabinet sub committee it is yet to be enacted in Parliament. Nevertheless, around 1200 O*la* leaf manuscripts transcribed and published.

The education, training and extension activities met with unqualified success. The impact was at several levels on a continuing basis, and was probably the most significant and profitable exercise of the Project. Its outcomes, spin-offs and impacts involved 1) a country-wide awareness of the importance of conserving medicinal plants, 2) creation of a regiment of field staff including community members, well trained in social mobilization, data collection and analysis, documentation of field data etc, 3) creating a strong and effective gender awakening and empowerment rarely seen in rural communities, 4) creation of a clear understanding and awareness of participatory/joint forest management, 5) demonstration of opportunities for increased choices for better livelihood, as well as demonstrating greater efficiency and innovation in production of traditional medicine, and 6) reviving and expanding the system of *Gurukula* education that characterised knowledge transfer in *Deshiya Chikitsa,* the traditional system of medicine.

Finally, there was the major issue of transferring ownership and management of the assets and activities of the project-created organizations to the communities on the one hand, and for DoA to assume the responsibility of guiding, facilitating, sustaining and expanding the work of VPMCs and CAMCs, on the other. This process was initiated in 2002 and carried through during the one-year extension granted to the Project But the work is not over and there is more to be done. MIM is gearing itself for the task ahead.

The CAMCs are to be registered as non-profit making companies once the immovable assets are transferred. The MIM on the other hand has drawn up an action plan to ensure the continuation of activities that were to be the responsibility of the DoA, BMARI and NITM. This Action Plan has identified Policy, Human Resource Development, Research, Product Development and Institutional Approaches as the key components to carry forward the activities initiated under the Project. MIM has in addition done the ground work to carry forward the project activities by drafting a National Policy on Traditional Knowledge and a 5-year development plan to uplift the system of traditional medicine, and finally to back-stop the VPMC/CAMCs operations, an inter-ministerial committee and a National Forum with wide community representation are planned to be established shortly.

1.0 INTRODUCTION

The Sri Lanka Conservation and Sustainable Use of Medicinal Plants Project commenced in June 1998 and was to be completed by June 2003. However, the Project was extended by a year and came to an end in June 2004, after an implementation period spanning six years. The Project was valued at US $ 5.07 million with GEF contributing a grant of US $ 4.57 million and the Government of Sri Lanka (GOSL) providing the balance for specific identified activities. The operational strategy for the Project also specified a role for IUCN - The World Conservation Union, Sri Lanka, viz. to provide operational and technical assistance for the Project. The objective of this tripartite working arrangement involving the donor (GEF-World Bank), the beneficiary (GOSL) and a provider of specialized services (IUCN-SL) was to set in place a mechanism which would facilitate implementation of the Project.

The primary objectives of the Project are the conservation of globally and nationally significant medicinal plants, their habitats, species and genomes, and promotion of their sustainable use. The Project sought to achieve its objectives through the implementation of three components: a) *in-situ* conservation, b) *ex-situ* conservation and c) provision of information and institutional support. The project components were to be achieved through the following series of actions:

- Establishing Medicinal Plant Conservation Areas (MPCAs) in locations where there is active collection from the wild.
- Community mobilization and creating awareness
- Establishing Village Project Management Committees (VPMCs) and Conservation Area Management Committees (CAMCs).
- Baseline data collection, preparation of village base maps and participatory resource mapping and creating a database.
- Micro planning and preparation village action plans.
- Establishing Ayurvedic dispensaries and medicinal plant gardens.
- Agronomic research on selected plant species, extension and establishing nurseries and commercial plantations.
- Development of home gardens, undertaking sustainability studies and enrichment planting.
- Undertaking education, training and publicity programmes as well as promoting *Gurukula* education.
- Promotion of alternative village incomes linked to maintaining the integrity of reserves.
- Capacity building, institutional strengthening and establishing stakeholder linkages.
- Dealing with ethical and Intellectual Property Rights (IPR) issues, and promotion of an appropriate legal and policy environment.
- Undertaking promotional activities to strengthen social and institutional sustainability during the phasing out stage of the Project.

The main target groups of the Project included the local communities living within the selected MPCAs, Community-Based Organizations (CBOs), organized women groups, local forest users (wood cutters, home builders, farmers and firewood collectors), traditional medical practitioners, commercial collectors and traders of non-timber forest products. State functionaries of Line Agencies of the Central and Provincial Governments (such as Forest Rangers, Beat Forest Officers, Agricultural Field Officers), Non-Governmental Organizations (NGOs), Educationists and Research Personnel were considered as the secondary target group of the project.

The outputs expected from the Project, as originally conceived, are:

- A viable management system for Medicinal Plants
- Increased production of selected medicinal plants on farms and in home gardens.
- Preservation of indigenous information on medicinal plants
- Improved technical capacity to conserve plants

The philosophical basis for the Project is the recognition that conservation and sustainable use of natural resources is possible only if the communities and the State agencies act interactively. With this landmark approach, the Project envisaged achieving the following benefits of local and national significance:

- An improved supply of medicinal plants.
- Improved information on factors that affect the supply of medicinal plants.
- Enhanced sustainable use of natural resources through managing critically endangered habitats, and monitoring their rate of regeneration.
- Increased skills and awareness on the importance of conserving medicinal plants.
- Ensure the preservation of traditional knowledge on medicinal plants.
- Reduce the seasonal variation of rural incomes and the dependence of village communities on extraction of plant species in the wild.
- Creation of a sense of ownership of natural resources among communities as a result of village based participatory management of resources.
- Ensure efficient use of land resources through new systems of farming and home gardening.
- Contribution to poverty alleviation by the potential increase and diversification of farm and non-farm economic activities.
- Integration of conservation management of medicinal plants in the National Environment Action Plan and the Biodiversity Conservation Action Plan.
- Contribution to long-term regional development through community based commercially oriented institutional structures.

The institutional arrangements for the project were: The Ministry responsible for Indigenous Medicine (MIM) was the principal executing agency with Department of Ayurveda (DoA) as the implementing agency, and Forest Department (FD), Department of Wildlife Conservation (DWLC), relevant Provincial Councils and Divisional Secretariats, National Institute of Education (NIE), University Faculties involved in tertiary education on Ayurveda, and IUCN as the project partners.

2.0 ASSESSMENT OF THE OBJECTIVES AND DESIGN OF THE PROJECT

Sri Lanka's efforts to conserve its medicinal plants resource and the related indigenous knowledge base have fallen short of expectations. The failure to control illicit land clearing and encroachments and the use of destructive and wasteful methods of extraction from the wild are responsible for the depletion in our medicinal plants resource base. And the rich indigenous knowledge, held by practitioners of traditional medicine, is being progressively eroded in the absence of a determined effort to document and preserve it for posterity. In this context the project objectives are meaningful from both national and global perspectives. The proposed project components and actions seem to be well tailored to address the above noted deficiencies in Sri Lanka's conservation efforts.

The Project was designed with in-situ conservation through sustainable management of medicinal plant species in the wild, as the main thrust. It also supported the cultivation of medicinal plants as a means of ex-situ conservation and for providing avenues for income generation. Appropriately, the Project identified local communities, especially those inhabiting villages bordering the five selected conservation areas, and including women, poor households, indigenous people and practitioners of traditional medicine, as its target population. They are the primary beneficiaries.

The objective of sustainable extraction or the cultivation of medicinal plants will enable the communities to attain a reasonable standard of living. This view is embedded in the following two quotations from the PAD (our bold type):

1. "*The primary objective of the village development program is to provide alternative income generation opportunities to those who are currently dependent on MPCA resources for their livelihood and to find substitutes to currently destructive activities. In this respect, the village development programme would be directly focussed on investment activities that demonstrate a direct linkage to the conservation of biological diversity and medicinal plants in the conservation areas*. ***Activities that are typically of a rural development nature would not be eligible for financing unless they can justify a conservation objective.***

2. *"Benefits at the local level* ***will include increased choices of livelihood and better income opportunities for people who will be involved in home gardening and plant cultivation****. Further ethno botanical reserves will attract an increase in income. The project will also broaden people's choices of livelihood by promoting alternative sources of income generation."*

The implications of these comments are that there would be substantial increases in income generation through sustainable harvesting and cultivation of medicinal plants, whilst the concept of conservation is sustained.

The assumption that supported this objective was that medicinal plants played a very important role in the livelihoods of the communities. The baseline surveys showed that the dependency of local communities was low in all MCPAs, other than Bibile. While the dependency in Bibile was estimated at 90%, it was less than 10% in the other MCPAs. This information may have surfaced if consultations were held with the primary beneficiaries referred to above as suggested above. It is likely that the poorest members of the community were among the most dependent.

3.0 PROJECT PERFORMANCE AND IMPACTS

3.1 An Overview

The Project involved a complex programme of activities with inter-sectoral and multi-stakeholder involvement that needed an exceptionally effective co-ordination and collaborative effort. In a project of this magnitude and complexity unless all operational systems function effectively and efficiently, it would be an extremely difficult task to achieve the intended objectives and goals. However, despite these complexities, the project has achieved significant outputs, that have resulted in observable impacts. Consequently it could be claimed that the Project had some measure of success in contributing to the primary objectives of the Project. The most important outputs of the Project are listed in Annex I.

The Project activities made a significant input towards the development of human resources. This included not only awareness programmes and a variety of training activities involving communities, stakeholders, State functionaries, and *Gurukula* education, but also postgraduate degree programmes as well as specially targeted foreign exposure exercises through participation in international meetings and study tours.

3.2 Assessment of Institutional Arrangements and Performance of Partner Agencies.

The institutional framework of the Project is no doubt highly complex but appropriate in the circumstances. It entails an equally complex system to make it operational. Such a situation demands a determined and resolute thrust to propel the implementation process forward. However, it appears that even at the end of the second year of project implementation, there still remained a blurred and confused perception of project objectives, at all levels. This draws attention to the importance of devoting time and effort to achieve a stakeholder consensus on project objectives, during the formulation of a project of this nature.

There were instances of missed opportunities on the part of both DoA and FD to strengthen their institutional capabilities to fulfil their own mandated functions more effectively. For instance, DoA could have enhanced its capabilities to develop the Ayurveda drugs production system, while at the same time expanding *ex-situ* conservation to a number of highly valued medicinal plant species. One of the major obstacles for a pro-active participation of DoA was its weak institutional, financial, technical and human resource capacity to match the high profile and financially strong operational capability of PMU. The thrust of PMU was to create and enhance rural based community structures for *in-situ* and *ex-situ* conservation of medicinal plants, which had little to do with DoA's own area of activities.

The project provided a rare opportunity for the Forest Department to directly field test, with little or no additional expenditure, the concept of participatory natural resource management spelt out in the Forestry Sector Master Plan (FSMP) of 1996. But whether the FD was able to make the best use of this opportunity was a question.

DWLC was the other major partner agency associated with the Project. DWLC's interests were largely related to the Ritigala MPCA, which was under its jurisdiction. But, Ritigala was a Strict Natural Reserve (SNR), and this unfortunately made many key project activities non-operative.

It should also be noted that the roles and responsibilities of the partner institutions had not been explained in the PAD. According to the Aide Memoirs of the IDA Review Missions, the roles and responsibilities of partner agencies were to evolve in the course of implementation. It appears this did not proceed as expected. In any case, the role of DoA which was the key implementing agency, had not been very well discussed.

It is on record that the Provincial Commissioners of Ayurveda had welcomed the Project and extended their co-operation to Project activities.

IUCN's role was to provide operational support, but soon appeared to function as a facilitator. Records seem to indicate that initially there had been some friction between IUCN and PMU. However, subsequently the relations improved considerably, with IUCN's facilitation role extending beyond expectations. It might even be said that IUCN came to be seen as a god parent, or more correctly as a trouble-shooter during project implementation.

3.3 Assessment of Key Interventions

3.3.1 Community Empowerment and Formation of VPMCs and CAMCs

The basis and methodology for organizing the community, to plan and implement project activities, has been clearly set out in the PAD. The process included a community social mobilization activity with a PRA tailored specifically to facilitate interaction between local people and the project staff and state functionaries active in the MPCA.

It is on record that even two years into the project, most POs and CDOs found it difficult grasp the concepts 'conservation as sustainable use of forest resources' and 'joint management as an opportunity for the communities to derive benefits from the (forest) resources over which their rights are recognized formally'. It is not surprising that the communities were confused.

A single village was the unit selected for organizing and coordinating village level activities. These activities were facilitated by a Village Project Management Committee (VPMC), as specified in the Project design. Each VPMC was expected to include at least one representative per household, to ensure full participation of the village in the project activities. However, this vision of a 100 percent representation of households in the VPMCs was never realized. Household representation at times reached 60 percent, but towards the end of the Project the overall average representation stabilized around 50 percent, with the actively participating membership in one VPMC dropping to below 30 percent. Many reasons were adduced for the shortfall in enrolments. These include lack of interest in the project objectives, illiteracy, old age, caste issues, interested but unable to spare the time and effort to attend meetings etc.

According to the Project Monitoring Consultants, Environment and Management Lanka Ltd. (EML), the degree and effectiveness of social mobilization was not entirely dependent on the

availability of funds or facilities for the project staff, but to the skills and capacity of the social mobilizers and the leadership of VPMCs.

As conceived in the Project, the Executive Committee of a VPMC comprised of 10 to 12 members, including representatives from stakeholder groups and village organizations as well as representatives of State Agencies. The Project envisaged that around 30 percent of the office bearers of a VPMC Executive Committee would be women. This objective has certainly been achieved and even surpassed expectations. In fact in our own interactions, it was observed that young women played a very active role as office bearers. This can be considered one of the most impressive outcomes of the Project.

The VPMCs were registered with the respective Divisional Secretariats, which gave them recognition and also enabled them to open bank accounts. Towards the end of the year 2000, a confederated apex or umbrella body, the Conservation Area Management Committee (CAMC), was constituted in each MPCA, except at Ritigala.

3.3.2 Surveys for Baseline Data Collection

Data collection started in mid 1998 with commencement of the socio-economic survey, which was virtually the starting point for the social mobilization process. This was followed by phase 1 of the ethno botanical survey, phase 1 of the resource inventory and phase 2 of the ethno botanical survey. The surveys were conducted with active community participation, by project staff facilitated by national and foreign consultants. Delays were experienced at different stages and the surveys were completed only around mid 2000.

The ethno botanical survey was designed to salvage, as much as possible, the traditional knowledge on the use of plant species in healthcare and medication, and to preserve this knowledge for the greater benefit of future generations. It is well recognized that elderly people in remote villages are custodians of a storehouse of invaluable and time tested knowledge for leading a healthy and contented life. This survey did, in fact, retrieve such information, in ample measure, and has made a substantial contribution to meet the project objectives.

The resource survey provided valuable plot data on the location and frequency of occurrence of valuable plant species. The resource inventory data formed the basis for resource mapping, boundary demarcation, and for the preparation action plans. As with the other baseline surveys, here too there were signs of an inflexible approach. While forest resources of much local significance such as bean stakes, construction poles and timber were overlooked, all medicinal plants whether they were locally important or not, were recorded. This is probably due to medicinal plants issues being dominant in the mind-sets of persons inducted to the surveys.

In general the baseline data collected was of good quality. Apart from the massive amount of data collected, these three activities provided opportunities for a large number of nationals at various levels to receive invaluable training and experience in such field activities. The participation of community members enabled them to identify valuable and threatened plant species occurring in their natural habitats.

Although excellent inventories were prepared, the information was not of much importance to FD and DWLC, because the inventories placed an emphasis on medicinal plants. Better planning and coordination of this exercise would have yielded valuable information for the FD and DWLC databases as well.

As pointed out in the IDA Mid-Term Review, in general, the training imparted to the para-foresters and village assistants was inadequate for them to grasp the principles, objectives and methodologies of baseline surveys, to enable them to be self-reliant in such exercises in future.

3.3.3 Development and Use of the Medicinal Plants Database.

A database consisting of data sets compiled by different institutions and agencies, including data generated during the conduct of this Project, was to be established at BMARI. The information in the database was to be accessible in accordance with procedures drawn up by DoA. The principal components of the database, as agreed by all concerned parties, were as follows:

- *Baseline Data generated by the Project:* Includes socio-economic, ethno botanical and resource inventory data relating to the four MPCAs;

- *Information on Medicinal Plant Species*: The main source of information would be published information, including pharmacopoeia.

- *Ayurvedic institutions and patient information*: The sources of information would be MIM, DoA and the National Institute for Traditional Medicine (NITM).

- *Marketing Information*: Generated from the Project, including retail sales, statistical data on production units, amounts used, sources of supplies, information on ayurvedic preparations etc.

IUCN convened a Database Advisory Panel to provide technical guidance.
Although tenders for hardware and software had been awarded in December 2001 and May 2002, respectively, and the database should have been fully operational by 30 June 2003, even as of May 2004, the database had been only partially operational.
Some of the technical deficiencies of the database pointed out in a recent study are:

- The connectivity of the Ethno botanical database (on Access) to the main database remains to be accomplished.
- The DoA has not made arrangements to provide data on agreed components (eg marketing, hospital statistics, drug issuance, drug production etc.).
- Frequent requests by BMARI to alter the structure of the database appear to have been a problem. A matter of concern is the shift of emphasis in the database structure. In terms of the original plan, the databases on ethno botanical surveys I and II were expected to be the core module in the Medicinal Plants Database. But it now appears that the main function of the database revolves around the bibliographic database of Ayurvedic medicinal plants collated at BMARI.

The positive aspects of the database include:

- Accounting software developed, installed and in operation
- Training provided to staff
- Completion of the 'Diversity' module
- Completion of the socio-economic database
- Resource inventory database with plot data from four MPCAs
- The website is functioning under the URL <www.medicinalplantsrilanka.slt.lk>

3.3.4 Micro Planning at Village and MPCA level

Micro planning was introduced as an instrument of project implementation at village and MCPA level, to improve efficiency of delivering project outputs with community participation and also to ensure a source of supplementary income to the communities. Micro planning was conducted with the active participation of VPMCs in keeping with accepted principles of community driven development. The VPMC and CAMC office bearers participating in micro planning had an understanding of the planning process and together with the project staff had received training in the preparation of micro plans, financial management and record keeping. Micro plans were prepared at the VPMCs. The CAMCs which included VPMC office bearers and project staff reviewed the micro plans and prepared the overall plan for the MPCA.

The significant difference was that unlike originally initiated Village Action Plans, which were to be financed through other existing projects in the vicinity, project funds were made available for implementing the micro plans. Also, there was a greater degree of flexibility in funding, and interventions that support the livelihoods of the community, such as construction of agro wells, support for pepper cultivation, supplying cloned tea plants, etc were also considered.

This important adjustment, very much in order in a process oriented project, helped considerably to revive the flagging interest of the communities and bring the project back on course. Motivation to participate in joint project implementation started in earnest with the micro planning process – the key being availability of project funds to implement micro plans. VPMCs and CAMCs were estimated to be responsible for delivering about 75% of the field based project outputs through implementing micro plans. It is on record that most of the plans have been implemented successfully achieving their goals, although the degree of success varied among VPMCs and MCPAs. The micro planning process had a positive impact on the communities in the MPCAs. It raised their awareness of the importance of medicinal plants and mobilized them for conservation efforts. Particularly impressive was the enthusiastic and active participation of women and the dynamic leadership they provided. Many of the VPMC office bearers were females who were well informed of the micro planning process.

According to various reports and case studies, a stereotype planning process had been applied in all VPMCs resulting in the preparation of near identical micro plans, with commonalities in actions and activities being their characteristic feature. Also the activity plans instead of being cross-sectoral and inter-sectoral had been compartmentalized to fit into the three major components of the Project. This would obviously fail to exploit any unique or special qualities, opportunities and strengths within a village landscape.

The reports available also show that plans had not been properly documented and presented with an operational strategy to facilitate implementation by the VPMCs. Further it has been claimed that the planning process had been directed rather than facilitated by the Project staff, which tends to deprive the community of a sense of ownership and could dampen their interest.

A greater effort to integrate or complement project activities with other village level activities undertaken by State functionaries and NGOs would have paid dividends. Such linkages would have strengthened the recognition and sustainability of VPMCs as action-oriented institutional structures. Even the chance for two GEF funded projects, operating in the Kanneliya Forest buffer zone, to work closely went a begging. CAMC business activities need to be planned carefully. Driers purchased for Rs.200,000/- each remains idle at Kanneliya and Naula due to lack of power and raw materials. Attempts at value addition in most instances had failed, largely due to lack of business acumen and marketing strategies. At the Naula processing centre a stock of drugs valued at Rs.146,000/- is lying in the stores without a market. The Ayurvedic Drugs Corporation has not honoured its assurance to purchase the drugs.

3.3.5 Improvements to Existing Nurseries and Establishment of New Nurseries

In order to support *ex-situ* conservation of medicinal plants, the existing nurseries at Bathgoda, Girandurukotte and Pattipola, which served specific biogeographic zones, were strengthened to enable them to meet the increasing demands for planting material. Two new nurseries were also set up at Meegoda in the Western Province and Pinnaduwa in the Southern Province to serve the needs of other biogeographic zones. The Meegoda nursery is currently managed by BMARI, while action has been taken to handover the Pinnaduwa nursery to the Ruhuna University. Each one of the new nurseries maintains a collection of over 500 species. Together with the improvements carried out at Girandurukotte, Pattipola and Bathgoda nurseries, the Project has made a substantial contribution to *ex-situ* conservation of medicinal plants.

3.3.6 Research on Medicinal Plants

The main components of the research programme were the development of protocols for mass propagation of some selected medicinal plant species, and the conduct of adaptive research trials to explore the feasibility of integrating medicinal plants into farming systems.

The Rubber Research Institute (RRI), Industrial Technology Institute (ITI), the Botanic Gardens, the Postgraduate Institute of Science (PGIS), the Postgraduate Institute of Agriculture, and the Universities of Ruhuna and Sri Jayawardenapura participated in developing mass propagation techniques, while RRI, PGIS, the Faculty of Agriculture, Peradeniya, the Provincial Department of Agriculture of the Southern Province, the NITM, and the National Freedom from Hunger Campaign Board participated in farming systems research. This Contract Research Programme (CRP) awarded grants for 24 projects of which, 17 were successfully completed. A Research Review Committee appointed by IUCN evaluated the research proposals and also monitored and evaluated the implementation of the CRP.

The research on propagation met with a creditable degree of success. Protocols for raising nursery plants were developed for 22 species. Although information on cost of production was not available, the achievements could be considered highly significant. On the other hand, the adaptive

research component was not very successful, mainly due to institutional and management constraints.

A noteworthy output of the CRP was the publication and distribution of techno-guides on the above noted 22 species. These techno-guides provide easy-to-follow steps on propagation, nursery establishment and cultivation

The results of the CRP appear to have had a significant impact on the target community. The interest at the community level was widespread with some even embarking on commercial scale nursery activities. The fact that a demand existed, and the fact that rural communities could respond positively to meet such a demand, if the necessary know-how was provided, should be an eye-opener to DoA in its future mission to sustain these rural institutional structures.

Capacity building, though not an objective of the CRP, was another valuable outcome. A cadre of young scientists has been trained in medicinal plants propagation and cultivation. They come from the project funded Research Assistants attached to the projects. Five of them have completed Master's level research work.

BMARI certainly did not have the expertise to undertake this research programme on its own. An arrangement for active collaboration in the CRP would have helped BMARI to develop its capacity to continue research on propagation and cultivation of medicinal plants.

In this context, the following recommendation made by EML (Pvt) Ltd, the Project Monitoring Consultants, in its 2003 report (page 24), is baffling:

> *"All the agencies dealing with medicinal plant research should have been brought under one umbrella to co-ordinate the activities and BMARI should have been held responsible for co-ordination, monitoring and evaluation of the research component of the Project. At least during the extended project period, PMU is expected to rectify this situation".*

This is an incredibly rash recommendation which betrays profound ignorance of our national scientific research system. Not surprisingly, no attempt has been made to implement it! While BMARI fought shy of participating in the CRP, many of the institutions that did so are regarded as centres of excellence. To say the least, it is absurd to expect BMARI to coordinate, monitor and evaluate the work of these prestigious institutions.

3.3.7 Home gardens and Commercial Plantations

The project strategy of promoting species diversity in home gardens was a cost effective measure for *ex-situ* conservation of medicinal plants. The Project provided the necessary planting material to ensure the success of this campaign. This of course had to be preceded by extensive community awareness programmes to bring about a clear understanding and appreciation of the concept of biodiversity conservation as well as to train them to recognize and identify plant species. This has been successfully accomplished.

It was evident from discussions during field visits to Rajawaka that generally the younger generation had been distanced from the traditional systems of medicine and healthcare. It did come as a surprise that they had not been familiar with common medicinal plants. On reflection this could be ascribed to the steady erosion of awareness, knowledge and dependence on the traditional systems. Not so today - with the new knowledge gained through the awareness programmes most home gardens are well stocked with medicinal plants, some of them with identification tags.

With the development of mass propagation techniques and establishment of nurseries, planting material is now freely available for home garden cultivation. The more enterprising members of the community run commercial scale nurseries to meet the demand from outside the MPCAs. There were also instances when members of one MPCA had sold plants to members of other MPCAs.

It is also significant that the concept of medicinal plant gardens has extended beyond home gardens, and taken root in schools, temples and in public places. According to records available there are over 3,500 home gardens and 30 school gardens with conserved medicinal plants in the four MPCAs.

Although reviving the concept of biodiversity conservation in home gardens was not seen as a priority issue either in the PAD or in other documents, it is a significant outcome of the project, especially in respect of *ex-situ* conservation.

3.3.8 Enrichment Planting and Sustainable Extraction of Medicinal Plants

A basic feature of the MPCA concept is a central core conservation area. In this central core conservation area, the primary focus would be to eliminate all human activities that have a negative impact on the conservation of medicinal plants. The forest areas surrounding the core zone are for sustainable extraction of medicinal plants, and the outer peripheral areas are where medicinal plants may be cultivated.

Demarcation and zoning of forests are prerequisites for conservation planning. Although resource inventory data had been used in zoning the MPCAs, no information is available on the types of zones demarcated. There is however, a reference in the E M L Evaluation Report of the Project seeking FD assistance to resolve conflicts arising during the demarcation of forest boundaries. Elsewhere it is stated that degraded forest lands had been demarcated for restoration by 'enrichment planting' of medicinal plants. Apparently some 205 hectares of enrichment planting and almost 45 kilometers of stream bank conservation planting had been undertaken in the degraded forest areas of the four MPCAs during the project period. In addition the VPMCs have carried out the establishment of Aloe species in fire lines to curb the spread of forest fires. All these measures to enhance *in-situ* conservation were carried out by community members on a shared daily wage basis, while the maintenance work was on a voluntary basis. It is not clear whether these activities were components of existing management plans of the relevant state agencies or as per plans prepared by the VPMCs, with the assistance of local and foreign consultants, and the relevant state agencies.
The IDA Aide Memoire of March to April 2000 makes the point that "there is a serious difference of opinion regarding Conservation and Joint Forest Management". It also stresses the need for collaborative team work to arrive at a mutual understanding of conservation including opportunities through joint forest management, which was to be employed as the key strategy for *in-situ* conservation. *In-situ* conservation through sustainable management of forests was planned as the

main thrust of the Project. But it is evident from the range of activities undertaken, that *ex-situ* conservation overshadowed *in-situ* conservation. However, now at the closing stage of the Project, a pilot study on participatory conservation management is to be tested in Kanneliya and Bibile. FD has agreed to participate and MOUs have been prepared.

Many of the medicinal plants are over-exploited. In extracting medicinal plants from forest reserves, communities often employ destructive practices. Acknowledging that a total ban on extraction is not feasible and communities cannot be denied the traditional benefits from their forest resources, the Project planned to promote harvesting at sustainable levels. Accordingly, the Project proposed scientific investigations to provide information on sustainable levels of harvesting and for sustainable management of populations. These studies aimed at collecting information on growth and yield were initiated only in late 2001. The time available was hardly sufficient for studies of this nature and work was initiated only on the following five species: Veniwel (*Coscinium fenestratum*) Goraka (*Garcinia quaesita*), Binkohomba (*Munronia pumila*), Aralu *(Terminalia chebula)* and Nelli (*Phyllanthus emblica*). Good progress has been made during the 20-month period available but there is much more to be done.

With the phasing out of the Project in June 2004, BMARI has apparently agreed to continue these studies in collaboration with FD. However, BMARI currently lacks the necessary human, physical and financial resources. DoA will need to make a strong commitment to raise BMARI to a level adequate for continuing this work.

3.3.9 Intellectual Property Rights Issues and Transcription of *Ola* Leaves

Responding to a request made during project preparation by the donor, and to the concerns expressed by NGOs, MIM appointed an Advisory Group to review the IPR issues that may come up during project implementation and to recommend measures to ensure that there is no infringement of IPR in any of the activities caused by the project.

The Advisory Group recommended the formulation of legislation to safeguard traditional knowledge relating to the use of medicinal plants. This was implemented by the Project in two phases. In phase one, the current status of legislation on IPR relating to the project activities was reviewed. The second phase involved the formulation of legislation to establish an adequate legal regime to safeguard traditional knowledge relating to the use of medicinal plants. This was done through a comprehensive consultative process.

The proposed legislation was to be enacted as a separate Act of Parliament, rather than as regulations under the Ayurveda Act. This was a decision made by the then Minister in charge of Indigenous Medicine. A draft legal framework was prepared, again through a wide consultative process that involved civil society and the general public at large. This process also involved specific reviews by a "Resource Committee", the IPR Committee, and also by what has been referred to as the "Extended Resource Committee".

The draft laws were then reviewed by the Director of the National Intellectual Property Office (D/NIPO), and then circulated to the relevant Ministries for their views. Following this consultative process the draft laws were published in the print media and the public was invited to respond.

Finally by mid 2001, a Cabinet sub-committee, approved the draft and authorized the Ministry of Commerce to take over and administer the legislation through NIPO.

It is necessary to expedite this legislation as meanwhile, there are several outputs from the Project (ethno botanical information, transcription of *Ola* leaves, herbarium material etc) which involve Intellectual Property Rights. Issues of this nature were foreseen during project preparation and timely action was proposed and initiated. It is necessary to have a system in place to deal with the use of this knowledge base and the related issues of benefit sharing.

In regard to the work on *Ola* leaf manuscripts, BMARI has been active in collecting and transcribing these manuscripts. This is a mandated function of BMARI. According to the Botanists at BMARI some 1400 manuscripts have already been transcribed and entered into a database.

BMARI has also documented the traditional knowledge collected from the communities during the Ethno botanical Phase II surveys. They have compiled a register giving the names of the holders of such knowledge. The next step would be to document the 'knowledge' itself such as prescriptions, procedures etc.

3.3.10 Education, Training and Extension

Education, extension, and mass awareness activities, specifically directed at demonstrating the cultivation of medicinal plants in farms were explicitly identified in the Project design. Significantly, the scope of this programme extended well beyond the expected objectives.

Some of the initial activities undertaken by the Project involved wide-ranging awareness creating programmes, which included workshops, seminars, PRAs etc. These were meant to achieve various objectives. The initial thrust was to equip the operational staff of the Project with a clear understanding of the concepts and objectives of the Project, so that the messages they take to the community are clear and unambiguous. Records however, show that clearing misconceptions amongst the project staff had itself become a major task, which according to IDA Mission Reviews had not been fully accomplished even 2 ½ years after the initiation of the project.

The next level of awareness creation was directed towards the community, the CBOs, NGOs and village based State functionaries, and was to be undertaken by the trained project staff. These programmes facilitated the establishment of village institutions, and also the conducting of baseline surveys and micro-planning activities. As envisaged in the PAD, these training and awareness creating activities culminated in the establishment of an Ayurvedic Medical Centre and an Information Centre in each MPCA.

Associated with the medical centre was also a demonstration farm for cultivation of medicinal plants. The information centres were meant to provide advice and guidance to farmers who wished to expand their home gardens, or embark on commercial scale cultivation of medicinal plants. In fact a total extent of 40 acres had been bought under commercial cultivation of 8 species of medicinal plants in the four MPCAs.

The Information Centre was also meant to support extension and demonstrations on processing of medicinal plants and value-addition. The drug production centres at the four MPCAs have produced

about 28 different types of medicaments, 5 types of cosmetic products and a few fruit cordials and sweets on a commercial scale. Although the Project was able to establish such enterprises in all MPCAs, their sustainability appears to be in the balance. A recent case study has recorded that two driers each worth Rs.200,000/- lie idle at Kanneliya and Naula MPCAs for reasons such as lack of electrical energy, inadequate supply of raw materials. There is also a stock of manufactured drugs worth Rs.146,000/- unsold at Naula due to the failure of the Ayurvedic Drugs Corporation to honour an assurance given earlier for its purchase.

Despite these drawbacks, the training, awareness creation and extension programmes at the two levels described above, directly benefited 4070 persons who received training in various areas such as natural resource management, medicinal plant conservation, product development, value addition, accounting, computer literacy, book keeping etc. In addition to this type of local training, 81 community members had the benefit of overseas training and exposure on joint forest management, drug production, operation of micro credit systems, and medicinal plant conservation.

The awareness creation activities of the Project met with extraordinary success. Their impacts were not limited to the confines of the MPCAs. The use of the print media, as well as prime time electronic media, ensured country-wide dissemination of information. There is little doubt that the Project has been instrumental in raising the level of mass awareness of conservation issues, the identification, propagation and cultivation of medicinal plants, and their use in primary health care. It was the view of nearly all consultants, resource persons, and respondents, that the most dominant and significant outcome of the Project was the extensive awareness creation on medicinal plants

The extension segment of the Project was also equally impressive. It involved the publication and distribution of several types of extension material. Apart from the monthly Newsletter in Sinhala, and its English version "CONSMEP", the publications included leaflets on various topics, two volumes of techno-guides, a publication on IPR issues, training modules for the ethno botanical survey, 4 volumes of *Ola* leaf transcriptions etc.

Education was another important project activity which was also implemented at different levels. The Project launched a revival of the "*Gurukula"* Education system. This is an ancient system of knowledge transfer in traditional medicine through apprenticeship training. Although the *Gurukula* process is seen as non-formal education in a Western context, it is, from a cultural perspective, a well recognized formal process of knowledge transfer. This is especially true in traditional medicine systems where knowledge is transmitted from generation to generation. The project successfully paved the way for reviving the *Gurukula* education system by supporting the first group of 23 acolytes. This is a significant achievement of the Project.

The project also strengthened and widened the scope of environmental education in school curricula with the assistance of the National Institute of Education (NIE), by formulating teacher guides in the national languages.

Finally, the Project supported four Masters Degree Programmes in natural resource management in Universities in the United Kingdom and The Netherlands for Forest Department officers, and two Masters Degree Programmes for advanced studies on medicinal plants in India for DoA staff. In addition to these higher degree programmes, the Project organized a number of study tours to India, Nepal and Thailand for project staff and state officials who were involved in project activities, and

who were also expected to continue with project activities, after the official phasing out of the Project.

4.0 PROJECT MANAGEMENT ISSUES

4.1 Performance of the PMU, Project Offices, National Steering Committee and the Project Monitoring Cell

The Project was launched in June 1998 and as noted earlier made a slow start. The new Project Director (PD), who took office in mid 1999, in his Report for 1999 states:

> *"Some of the teething problems remained unresolved at the beginning of the year (1999) preventing the project activities getting off the ground. The mass media continued to cast doubts on the bona fides of the project due to the absence of a proper legal framework. The lack of a clear understanding of the project concepts, and the absence of an agreed framework for the implementation of the project components further confounded the issues."*

This statement captures the problems encountered in moving the Project forward and emphasises the need for meaningful interactions among key stakeholders during project preparation.

The PD was the link between the national level implementing partner agencies and the Project. The PD as head of the PMU Secretariat reported to the Secretary MIM, and held the overall responsibility of overseeing, guiding, supervising and managing the Project. The PD's task was not an easy one. This was compounded by certain issues which appeared to be beyond his control.

To begin with, the PD had two categories of staff at the PMU. Technical staff (the national consultants), was hired, commissioned and paid by IUCN (as per contract with MIM), while the PD, Programme Officer, Accountant and other support staff were hired by MIM. Technically, the national consultants served two masters, possibly with a higher allegiance to IUCN. The seeds of discord were inherent in this arrangement. And problems did arise, and seem to have been simmering and unresolved well into 2000. The IDA Review Mission in March-April 2000 observed:

> *"The National Consultants and PMU have not been able to provide a collective and cohesive support and guidance to the field staff to initiate the micro planning process".*

The same report also observed:

> *"The hierarchical relation between different layers of staff, and the unclear functional lines between PMU and the national consultants inhibits the free flow of information and atmosphere in which mutual understanding can be built".*

The PMU was established under the Ministry responsible for the subject of Indigenous Medicine. Unfortunately, this particular subject had no settled affiliation to a 'parent' ministry until recently. With each move of the Ministry, the project was 'on hold' until the new authorities came to grips with the project and this, no doubt, seriously affected progress. When the new Ministry was appointed in the recent past an "independent" committee to review the Project was appointed. Since this review was to be undertaken at a time when an extension was given to the project mainly to transfer ownership of the Project to the communities, this hampered the smooth transition of the

ownership of the project to VPMCs and CAMCs. Many respondents described this period as the most disastrous phase of the project.

The PMU also had to cope with a high turn over of Project staff, as well as of the heads of the principal executing agency (MIM) and the principal implementing partner (DoA). During the six years, June 1998 to June 2004, the Project had four Project Directors reporting to seven Secretaries/MIM and working with seven Commissioners of Ayurveda (see Annex III). Also, there was no continuity in the key position of Programme Officer at PMU. Three persons occupied this position in between long periods when it was vacant.

The PMU conducted its business in the MCPAs through a field Project Office in each MCPA, headed by a Project Officer (PO) assisted by a Project Assistant and a field staff of CDOs. At the outset, a major task for the PMU was to promote a keen understanding and appreciation of the Project concept among the Project Officers and CDOs, and to see that they had the knowledge and skills needed to interact productively with the community. This was necessary as it was the task of the CDOs/POs to carry the Project message, establish a continuing interaction with the community and create an awareness of project issues and benefits. However, this situation changed for the better in the latter half of the project. With additional training the CDOs made a valuable contribution, and all respondents were unanimous that the level of awareness of the project objectives, value and importance of medicinal plants and the need to conserve them was high among the communities.

As for coordination between the PMU and line agencies, two mechanisms were available viz. the Project National Steering Committee and the Project Monitoring Cell. Although the latter was for monitoring purposes it had the potential to assist in coordination as well. The composition of these two committees was detailed in section 4.2 above. Both committees had high level representation from all relevant agencies and were chaired by the Secretary and Additional Secretary of MIM, respectively. These committees were exactly what was needed to steer and coordinate a complex project. By the nature and level of representation, these committees had the capacity to ensure coordination and trouble-free implementation of the project. Had they functioned without interruption it would have been an enormous asset to the PMU.

The National Steering Committee (NSC) was established with a wide multi-sectoral and multi-institutional representation, and presided over by the Secretary of MIM. Reference was made above to the inexplicable curtailment of the NSC mandate, which deprived the PD of guidance from an important and representative forum. Another issue concerned the National Steering Committee (NSC) which was set up to provide overall guidance to the Project, including the approval of annual work plans and budgets. However, for reasons that are not clear, the NSC mandate was confined to guidance on policy issues. Consequently, the Project Director was deprived of the benefit of operational guidance from the NSC. It seems the IDA Review Missions stepped in to fill the breach. In fact, the *Aide Memoirs* have on no less than 90 recorded instances attempted to push matters through strong recommendations, or with interventions such as joint agreements with implementers.

The Project Monitoring Cell (PMC) was a devise to monitor and evaluate the various project activities, and assess the timeliness and focus of the Project. It comprised representatives of stakeholders, heads of departments participating in the Project, representatives of IUCN, and the

key project staff. This cell was chaired by the Additional Secretary of the MIM. During the initial stages, the PMC met almost on a monthly basis but from late 1999 the PMC appeared to be phasing out with infrequent meetings, despite a strong recommendation by the IDA Review Mission in 1999, which emphasized the need for it to monitor progress and ensure adherence to the agreements reached in the Mission Aide Memoirs.

4.2 Institutional Coordination and Linkages

Since the Project interacted with a diverse group of stakeholders, mechanisms for formal and informal coordination and linkages, at different levels, were set in place.

Mechanisms for linking the communities to the MCPA Project Office and coordinating their activities were designed by the PMU, as per guidelines in the PAD. The communities were committed to be active partners in selected project activities, eg. in baseline surveys and village mapping. Community Agreements were signed to ensure compliance. Terms of Reference issued to Project staff clearly defined their roles in coordination at the community level as well as at higher levels.

Linkages were also established between the communities and the following line state agencies: a) FD and the DWLC, b) Central Government officials operating in the Divisional Secretariat, and c) Provincial Government officials operating from the Provincial Secretariats. It was under this formal linkage (c) that VPMCs and CAMCs were established. The State agencies represented in the VPMC were the *Grama Niladhari, Samurdhi Niyamaka, and Govi Niyamaka.*

Agricultural Extension and Ayurveda are with the Provincial Administration, while Forests and Wildlife are with the Central Government. The ex-officio representation of all four agencies in the CAMC gave credence to the existence of a two-way linkage with the Provincial and Central Government Administrations.

The basis for official linkages was the MOUs signed by MIM with the relevant line Ministries involved in implementation. However, the Divisional Secretariat played a special coordinating role. Since all the conservation management activities of the MPCA fell within the administrative control of the Divisional Secretariat, no action which impinges on the proprietary control of the State could take place without the knowledge and/or approval of the Divisional Secretary. The relationship between the Divisional Secretaries and the Project was regularized by signing a MOU with the Ministry of Public Administration, Home Affairs and Plantation Industries. This was a significant move, as the DS was the most influential administrative structure at the community level.

4.3 Monitoring and Evaluation

Project activities were monitored at several levels. Some mechanisms were built into the Project, while others evolved during implementation. The National Steering Committee (NSC), Project Monitoring Cell (PMC), Monitoring and Evaluation Meetings at the Divisional Secretariat, IUCN's Quarterly Progress Review Meetings, Review Meetings under the auspices of IUCN and World Bank and Impact Evaluation by EML, were among them.

It is clear from Sections 4.1 and 4.2 above that the NSC and PMC, which were expected to perform the dual function of coordination and monitoring, failed to play an effective role. However, other formal and informal mechanisms for M&E were in place at the operational levels.

Monitoring and Evaluation Meetings at the Divisional Secretariat, convened by the Divisional Secretary met once a month. Project Office staff as well as the field staff of all participating institutions were in attendance. These M&E meetings provided an opportunity to analyse and resolve issues of specific concern to individual MPCAs.

Monitoring and evaluation at another level took place at the Quarterly Progress Review meetings convened by IUCN. These meetings were attended by senior officials of IUCN, the Director and Programme Officer of the PMU, and the national consultants commissioned by IUCN. During the inception phase meetings were held at fortnightly intervals, largely to resolve teething problems and to ensure a smooth take-off of the Project. Later review meetings were convened at quarterly intervals. A few meetings were attended by World Bank staff who wished to be apprised of project progress.

Finally, there was the Impact Evaluation Study commissioned to Environment and Management Lanka (Private) Ltd (EML) in the year 2000. EML was expected to undertake continuous assessment of the ecological and socio-economic impacts.

The methodology employed by EML for the evaluation involved workshop style group discussions in each CAMC with 35-40 participants, followed by field inspection and field research. The group discussions were undertaken to assess impacts using a number of measurable and monitorable indicators, and the field inspections and research were largely meant to assess the outcomes of workshops

The final report submitted by EML is narrative and concentrates on the current status of the Project. Although it identified indicators, it failed to demonstrate convincingly a change process either in qualitative or in quantitative terms. Take for instance the simple 'start-up' innovation of establishing the Ayurvedic clinic, the impact of which could have easily been demonstrated in both qualitative and quantitative terms. Instead the report points out the satisfactory nature of the services provided. Again the participation and empowerment of rural woman, which no doubt is a highly significant achievement has not received the consideration it deserved. A 20 to 30 percent participation of women in rural areas reflects a noteworthy development and a change of attitude. EML failed to employ a participatory process with the community actively involved, despite a specific request by the Project. Hence the final report was not well received.

To make good this deficiency a specialist team was commissioned to develop a participatory monitoring and evaluation (PM&E) system that could eventually be used by the communities even after the Project. The team worked with selected VPMC members and project staff and developed formats appropriate for a PM&E system. However, follow-up tests showed that community enthusiasm for implementation was low. Nevertheless, there is a plan for Project Officers and CDOs to introduce this system to the VPMC members.

4.4 Financial Management and Disbursements

The finances of the Project have been managed in accordance with established GOSL accounting procedures and World Bank financial procedures. The accounting procedures and systems have been applied in a satisfactory manner. At first, in terms of the Trust Fund Grant Agreement (TFGA), funds were provided only for the 3 categories, Civil works, Goods and Consultancy/Training. Subsequently the TFGA was amended to provide for operational costs. Separate cash books were maintained for the Special Dollar Account and GOSL funds. Arrangements were made for the MCPA Project Offices to maintain records of expenditure and report back to PMU. Financial performance and progress reports, of an acceptable standard, were made available by PMU on a regular basis. The accounts were subject to periodical audits both by internal auditors and the Auditor General's Department and were found to be acceptable.

The overall financial performance has been commendable in that the total allocation of US Dollar 5.07 million has been utilized in full over the six-year project period. Percentage utilization of allocated funds under each of the categories (noted in above paragraph) has also been generally high and in keeping with the estimates at appraisal. However, the position was quite different when total expenditure was examined component-wise. In the case of *in-situ* conservation which was the main thrust of the Project, the expenditure was around 50 percent of the appraisal estimate while it was 200 percent for ex-situ conservation and about 125 percent for information and institutional support.

While financial performance and maintenance of accounts has generally been good, problems were encountered in regard to the timely provision of funds for project activities. The PMU seems to have acquired a bad reputation for delaying payments. A decentralized funds disbursement procedure was developed to facilitate the release of funds for project activities in the MCPAs, through Divisional Secretariats. Nevertheless, fund disbursements from the PMU were slow. In mid 2001 an IDA mission records receiving complaints from virtually every single community they met. In some instances the delays exceeded 5 months. A PO had detailed the difficulties in getting reimbursements from PMU even after many visits to Colombo and many promises. It must also be noted that IDA missions have repeatedly drawn attention to the chronic shortage of accounting staff at PMU. To ease this problem, a set of operational guidelines for funding micro plans and releasing funds direct to VPMCs was formulated and implemented. The extent to which it succeeded is not clear.

5.0 ACHIEVEMENTS, SPIN-OFFS AND IMPACTS

The Project planned to conserve medicinal plants of significance and their wild habitats, while promoting their sustainable use. This was to be achieved by implementing the following major components:

a. Expansion of *in-situ* conservation of medicinal plants,
b. Expansion of *ex-situ* cultivation and conservation
c. Information and Institutional support.

A viable management system for medicinal plants, in their natural habitats, was the output expected of *in-situ* conservation efforts. To accomplish this it is necessary to determine norms and procedures that would ensure a sustainable level of harvesting. Sustainability studies were initiated in respect of five species but there is no evidence that sustainable levels of extraction were determined and put into practice by the forest users. An oft quoted exception is that villagers now desist from cutting branches or felling trees to harvest Aralu and Nelli. This is an indication that the concept of 'sustainable use' has been recognized at least in respect of some plant species, although scientifically determined levels of extraction have not been established yet.

Plant extractions from the wild, in general, seem to have been significantly reduced due to project interventions such as encouraging the use of substitutes for forest products (eg. for Bean poles), and participatory vigilance activities. There is also evidence that some project interventions had a direct or indirect bearing on *in-situ* conservation. These involved enrichment planting, establishment of fire lines, zoning and demarcation of forest boundaries. Even though the key output, a viable management system, is not yet in place it can be said that *in-situ* conservation of medicinal plants has been promoted and strengthened by the Project. This is an achievement that has to be consolidated, and its further expansion to areas outside the MPCAs must be the future thrust.

Towards the end of the Project, Joint Management Plans for the Kanneliya and Bibile MCPAs were prepared in consultation with the FD. Pilot testing commenced just six months prior to project closure. To reap the benefits of the Project it is of paramount importance to continue with the testing, and develop and implement a pragmatic participatory management plan. It is hoped that the DoA, FD and the communities will be equal to this challenge.

The *ex-situ* cultivation and conservation component was expected to increase the production of selected medicinal plant species in farms and home gardens. The Project completed studies on 108 species, developed techniques of mass propagation for 22 widely used species and published informative techno-guides and advisory leaflets on medicinal plant cultivation. These efforts have generated enthusiasm in home garden and commercial scale cultivation. The development of 3650 home gardens, 30 school gardens with conserved medicinal plants and commercial scale nurseries with the capacity to meet even the demand from outside the MPCAs provide strong evidence of successful *ex-situ* conservation. In fact, it may be said that the results have exceeded expectations.

In following up on ex-*situ* conservation in the future, in addition to production levels, trend analyses of imports and exports of selected medicinal plants should be examined. Special attention should be directed at medicinal plants that have been traditionally extracted from forests. It may also be useful to monitor the expansion of field gene banks and cryogenic preservation of germplasm.

The key outputs expected of the third component of the Project, on information and institutional support are i) the preservation of indigenous knowledge and practices in the use of medicinal plants, ii) improvement in the technical capacity to conserve plants, and iii) the enactment of a legal framework on IPR.

The baseline surveys have generated a large volume of information that have been recorded in an IPR serviced database of 2 GB capacity. Published information is available on a number of subjects of direct interest to conservation of medicinal plants. In addition 1200 *Ola* leaf manuscripts have been transcribed and published and a legal framework for IPR has been drafted. Capacity building and human resource development in various aspects in support of medicinal plants conservation at the community level have been provided to nearly 5000 persons. These outputs show the manner in which the expectations and objectives under the third component of the project had been achieved.

There were several short comings in the project design, and many hurdles to be cleared at various stages of project implementation. Despite this the Project did make a significant impact on the conservation of medicinal plants and of indigenous knowledge regarding them. Additionally, the Project has generated numerous impressive spin-offs, which are listed below.

At the community level

- Opportunities for increased choices of livelihood, and better incomes for those involved in home gardening and commercial cultivation.
- Creation of a regiment of field staff well trained in aspects of social mobilization, data collection and analysis, documentation of field data etc.
- Development of a new generation of self-reliant and motivated community leaders who are able to identify and analyse local problems, and develop action plans for their resolution.
- Creating a strong and effective gender awakening and empowerment, rarely seen in remote rural communities.
- Creation of an awareness and understanding among the communities of participatory/joint management of natural resources.
- Understanding better the concepts of equitable sharing of natural resources and benefits.
- Motivation for innovation and development of new processes and medicinal products.

At the national level

- A country-wide awareness of the importance of conserving medicinal plants.
- Increased skills in conservation and researching sustainable extraction of medicinal plant materials.
- An improved supply of planting material.
- Greater efficiency in production of traditional medicine.
- Existing sources of traditional knowledge compiled and preserved in-country.
- Revival and expansion of *Guru Kula* education that characterized knowledge transfer in the traditional system of medicine –*Deshiya Chikitsa.*

6.0 SUSTAINABILITY OF PROJECT INITIATIVES AND TRANSFER OF RESPONSIBILITIES

6.1 Project Expectations

The problems generally encountered in sustaining project achievements were recognised at project preparation. However, it does not appear to have had a proper appreciation of the measures needed to meet this situation. The PAD at one point states:

> *"A common drawback of community level projects is that with the exhaustion of project funds, the activities associated with the project cease to function. Projects such as these have a relatively weak impact on the local communities and their commitment to continuing activities initiated by the Project. The proposed project will avoid this situation through designing mechanisms to replenish funds to finance village level activities. To foster local communities ownership of the project, the funds will also receive their contribution. These measures will be important means of ensuring ownership and sustainability of project investments".*

The current ground situation unmistakably demonstrates the unrealistic nature of this assumption.

The project document also refers to eco-tourism and its spin-offs, as well as income-generating activities as measures that would contribute to financial sustainability at phasing out. It is clear that eco-tourism was a non-starter, and the income generating activities that evolved were neither stable nor market oriented to ensure financial sustainability.

At phasing out, the management and ownership of project activities and institutions were to be shared. Firstly, the institutional set up and activities that were assisted, guided, and funded by PMU and the MPCA Project offices had to be taken over and managed by VPMCs/CAMCs, after June 2004. Secondly, the onus of guiding and facilitating the work of VPMCs/CAMCs, ensuring continuity, and incrementally expanding the project ideology and framework in the future was to be the responsibility of DoA.

In order to facilitate these transfers of responsibility several steps were taken during late 2002 to 2004. The foremost concern was to ensure that the community organizations established under the Project remain viable. To ensure viability of these structures, the VPMCs had to achieve, social, institutional and financial stability, the foundations on which strength and confidence can be built for continued existence. These efforts to create such a favourable environment are reviewed in the sections that follow. These efforts should be regarded as the initiation of a process that has to be taken through to completion even after the project is terminated

6.2 Social and Institutional Sustainability

A special consultancy was arranged to prepare for the critical process of transferring ownership and responsibility to the communities. VPMC members had already gone through a psychosocial transformation through the numerous training and social mobilization activities that were carried out throughout project implementation. However, communities had to be conditioned for another

social transformation, in which the members would acquire leadership qualities and the capability to plan and undertake community-based development activities by themselves.

The Project initiated a training process in early 2003 to provide the Project Officers, CDOs and community leaders with the skills to carryout situation analysis, action planning and preparation of project proposals. They were also introduced to the fundamentals of financial management, micro credit and the concept of revolving funds. The consultancy also examined the feasibility of converting VPMCs and CAMCs to be commercially viable entities.

By December 2003 several short comings that will affect social sustainability had been noted by the Consultant. These included a) declining trend in community participation in project activities, b) limited capacity of the existing leadership, c) influence of traditional leadership, d) deficiencies in existing constitutions, e) continued dependency on project support, f) limited bargaining power over the other institutions for resources, g) poor understanding of the existing competitive market environment and some confusion among communities on project management.
Although the consultant had made a series of short term and long term recommendations to address these issues, time had already run out, to make any meaningful behavioural changes.

The question of institutional sustainability was examined from a different perspective. VPMCs were originally created for a limited purpose and their constitutions were fashioned accordingly. With time they extended the scope of their activities to include savings and credit, provision of common amenities and other services outside the original scope of the Project. In this context, the Project held four workshops at Provincial level and one national workshop in mid 2002 for the purpose of developing a consensus on institutional changes, and mechanisms for future operation of the VPMCs/CAMCs. The key recommendations that emerged from these workshops were:

- The existing structure of VPMCs/CAMCs should be retained
- Establish Advisory Councils for each CAMC with representatives from relevant state agencies, to provide guidance and foster co-operation
- Strengthen the core funds of VPMC/CAMC by additional 'seed' funds, and convert these into revolving funds.
- Facilitate linkages with relevant state agencies and NGOs
- Provide training in management and business skills to VPMC/CAMC members to enable these institutions to function as commercially viable organisations.
- Obtain the services of DoA for maintenance of dispensaries, and the services of the Sri Lanka Ayurvedic Drugs Corporation for production of Ayurvedic medicine.

The PMU also organized three study tours to Kerala in India, for community members to study community based enterprise development.

At this stage a Consultant who examined the institutionalisation process of VPMCs/CAMCs recommended that the existing constitution at VPMCs be retained with a few amendments, and that it should evolve according to community needs. Other recommendations made were, a) CAMC constitution to provide for the services of the CAMC Manager to audit and oversee/monitor the VPMCs, and b) CAMCs be registered as non-profit making companies charged with the responsibility of sustaining the VPMCs.

Capital items procured by the Project had been handed over to the VPMCs/CAMCs, by the end of 2002. But the fate of assets such as land, buildings and machinery had not been resolved even in mid 2004. In arriving at a decision on this the following observations made by the Consultant should be given careful consideration:

"The office bearers of VPMCs and CAMCs expect the assets held by the CAMC centres to be handed over to the apex organizations at project end but expressed fear that assets may get distributed to government departments on the basis that management of these assets is beyond the capacity of CAMCs".

"If the CAMC centres with their assets are not transferred to the CAMCs, it will be a serious setback to the sustainabilty of not only the CAMCs but also the VPMCs".

In the context of seeking social and institutional sustainability it would not be inappropriate, for all concerned, to bear in mind these comments of the Consultant:

"Phasing out of SLCSUMPP is likely to have serious implications on the sustainability of VPMCs because the concept of the project, as well as the institutional arrangements devised for the purpose, were not conceived within the community but were externally introduced, of course for the greater good of society. Whether that reason is adequate to attract and sustain interest on the part of impoverished or nearly impoverished rural communities is a factor to be seen".

6.3 The Business Outlook for Financial Sustainability

The Project instituted, in May 2004, a consultancy to assess the potential for enterprise development, and through a participatory process evolve a business plan for VPMCs/ CAMCs. Previously, in 2003, a similar exercise for the Bibile CAMC, failed because there were no mechanisms to effectively implement the proposed recommendations. It was recognized that at project closure CAMCs and VPMCs faced a grave risk in the absence of a carefully designed weaning phase. Essentially, such a weaning process was to be an interim transitional strategy carried through a period of 18 to 24 months.

This prerequisite strategy for the successful introduction and operation of the business plan included the establishment of what has been referred to as a "social network", and the Business Component. The social network would link CAMCs to selected organizations and institutions with mutual interests and provide a sense of security when the Project terminates. To this end the consultant identified several areas of interest to CAMCs such as poverty reduction programmes, infrastructure development, micro finance and gender development and also a number of appropriate organisations.

The consultants, in fact held discussions, and even initiated preliminary steps towards establishing the collaborative links. The support network was expected to build institutional capabilities, and with it the confidence required to face the future. The consultant realized that the CAMC/VPMC members of Naula and Rajawaka could not make a distinction between wishful thinking and a feasible/realistic entrepreneurial endeavour. Therefore in these two MPCAs two sets of business plans were formulated. One was a plan that was believed to be realistically possible in the given

context, and the second was a plan that was possible under a "best case" scenario. At Kanneliya there were data and information limitations and the business plan that was formulated could not be verified during the period of the consultancy. This study made a series of recommendations for implementation of the business strategy with institutions that had the interest and potential to be associated with the community organizations.

6.4 The Onus of Sustaining the Conservation Strategy of Medicinal Plants

The concluding event of the Project was a National Seminar on Medicinal Plants conducted from 29-30 May 2004. The 26 technical and progress review papers presented at this Seminar summarized the various outputs and achievements of the Project and their impacts. This Seminar also served as the forum for a critical analysis of the project activities, and of the role of implementing agencies. It was also the launching pad for the transfer and take over of responsibilities by the appropriate state agencies to carry forward the range of conservation related activities after the Project terminated in June 2004. Despite the lukewarm interest and participation of the relevant state agencies at project inception, there was happily a turn-around and at termination, the environment was favourable for DoA, the operational arm of MIM, as well as for the other partner agencies to take over, and systematically carry forward the positive achievements in accordance with their own institutional mandates.

The National Seminar was followed up with a workshop organized by MIM to "*Mainstream the Activities of Medicinal Plants Conservation Project".* This Workshop held in September 2004, identified Policy, Human Resource Development, Research, Product Development and Institutional Approaches as the key programme components under which an Action Plan should be formulated to mainstream the Medicinal Plant Project activities within the MIM and DoA. Subsequently these programme components were further re-defined into sub-components and projects, and formulated into an Action Plan to be implemented through 2004 to 2006. With this turn of events, and the more enlightened outlook at MIM, there is now optimism that the key objectives of conservation and sustainable use of medicinal plants can be comprehensively achieved.

In fact MIM had realized the significance of some of the key achievements of the Project in good time, and initiated several new activities on its own within the Ministry, in preparation to receive and carry forward some of the impressive outcomes. The revival of *Guru Kula* education, documentation and preservation of traditional knowledge, transcription and publication of O*la* leaf manuscripts, establishment of herbal gardens in schools and public places, home garden development, curricula development in secondary schools on the importance of medicinal plants conservation, commercial cultivation of medicinal plants and innovations in drug products and processes, were aspects that were strongly supportive of the functions and activities of both DoA and MIM. The response of MIM to these outcomes is the preparation recently of a draft National Policy on Indigenous Medicine, and a 5-year development plan to uplift the system of indigenous medicine. It has also planned to establish an inter-ministerial committee to continue some of the field operations for *in-situ* and *ex-situ* conservation of medicinal plants. In order to carry forward the community structures, MIM has an ambitious plan to extend the VPMC/CAMC concept to a few other locations on a trial basis. Finally it has also planned to establish a **National Forum** with wide representation from VPMCs/CAMCs to resolve issues of common concern to these institutions and for policy advocacy.

7.0 LESSONS LEARNED

On the basis of the above evaluation a number of useful lessons have been learned:

- The principal executing agency should be a stable entity that has a strong cadre with extended tenure to ensure institutional memory. While there were changes in both ministry high officials and DoA Commissioners, the DoA as an institution has been more stable. From the point of view of ownership and sustainability, DoA would have been a better location for the PMU than MIM.

- VPMCs and CAMCs prove to be viable institutional structures provided they are very well linked to the state agencies within the desired common objectives. The initiatives taken by the project to sustain these as commercially viable entities should be pursued.

- The need for economic incentives to encourage participation of members of rural communities should be recognized at design stage. Project funds should be available to support local communities to pursue alternative livelihood strategies.

- In planning natural resource management/rural development projects ensure that project beneficiaries are involved in developing the concept of the project, as well as the institutional arrangements devised for the purpose. Participatory needs assessment and planning exercises would promote ownership and facilitate subsequent mobilization of the community. Equally, ensure a consensus on project objectives among important stakeholders, during project preparation.

- Ensure a high level of awareness of project objectives among project personnel and functionaries of partner organizations working with the communities, **before commencing community mobilization.**

- Moving from 'protection' to 'conservation and sustainable use' of natural resources entails major attitude/behaviour changes on the part of field level officials of state agencies. These field officers may well be amongst those who feel threatened by the implementation of the project. Ensure that training programmes are provided to prepare these officers, **before commencing community mobilization.**

- More time and resources should be spent on capacity building of project personnel working with the communities. Their community mobilizing skills in particular should be fully developed at the very beginning of the project. The time spent on training community mobilizers will be repaid in ample measure during implementation.

- Ensure that multi-institutional projects have a strong, dynamic and committed high level committee to guide and steer project and ensure coordination and timely implementation.

- Ensure that amidst the achievement of numerous relatively less strategic outputs the project management does not lose sight of the major outputs/indicators.

- Rural development/natural resource management projects should have a realistic time frame. The Project worked with generally impoverished rural communities with little or no entrepreneurial or business skills. A 5-year period seems wholly inadequate to raise their awareness on conservation issues, mobilize them, build capacities to plan and develop sustainable projects/enterprises and marketing strategies and manage them profitably to generate livelihoods options and support the communities.

- In countries with little or no previous experience in participatory projects on conservation and sustainable use of natural resources, a pilot project limited to one MPCA would be sensible.

- Performance in regard to financial and accounting matters were acceptable to World Bank and GOSL auditors. Nevertheless, the communities were not at all satisfied and always complained of delays. The problem here may go beyond lethargy in execution. There may be a case for revisiting the financial regulations and procedures in force with a view to making them community development projects friendly.

ANNEX I

Major Outputs of the Sri Lanka Conservation and Sustainable Use of Medicinal Plants Project

No	Output	Number
1.	Establishment of MPCAs: Kanneliya, Naula, Rajawaka and Bibile	04
2.	Establishment of community organizations for conservation of medicinal plants	39 VPMCs 04 Companies
3.	Establishment of an information centre and office complex in each MPCA	04 Information centres 04 Office complexes
4.	Establishment of processing centres with necessary equipment for drug production, Ayurvedic clinics, and sales centres at each MPCA.	04 Processing centres 04 Ayurvedic clinics 04 Sales centres
5.	Establishment of two national level nurseries at Meegoda and Pinnaduwa with more than 500 important medicinal plants species at each location	02 New national level nurseries cum gene banks
6.	Establishment of germplasm collections of important medicinal plants species at each MPCA with more than 350 species at each location	04 Medicinal plants gene banks
7.	Improvements to the existing 3 nurseries of the Department of Ayurveda; Girandurukotte, Pattipola and Haldummulla for enhanced germplasm stocking and planting material production	03 Improved national level nurseries
8.	Development of propagation techniques for 22 selected important medicinal plants species through research conducted under contract research programme	22 Species
9.	Medicinal Plants Resource Inventories	04 Resource inventories
10.	Publication of two volumes of Techno-guides to disseminate findings of the agronomic and propagation research	02 Volumes of Tecnno-guides
11.	Sustainability studies on selected medicinal plants species	04 Species studied
12.	Increased diversity and population of important medicinal plants in home gardens in each of the four MPCAs	3650 Home gardens
13.	Establishment of a comprehensive database on	01 Database

	medicinal plants at BMARI, Navinna	
14.	Training of community members in natural resources and medicinal plants conservation, product development, accounting, computer literacy, book keeping etc	4700 persons
15.	Short term overseas training of community members on Joint Forest Management, Drug Production, Micro Credit systems and medicinal plants conservation	81 Persons
16.	Officials of partner organizations trained overseas to Masters level in Natural Resource Management and Medicinal Plants	02 Officers of DoA 04 Officers of FD
17.	Short term overseas training for project officials and officials of partner organizations on Joint Forest Management, Drug Production, Micro Credit systems and medicinal plants conservation	68 Officers
18.	*Gurukula* acolytes trained with traditional practitioners for preserving traditional knowledge	23 Trainees
19.	Preparation and pilot testing of forest management plans in Bibile and Kanneliya MPCA in collaboration with the Forest Department	02 Joint Forest Management plans
20.	Enrichment planting	205.5 hectares
21.	Stream bank planting	45 km.
22.	Commercial cultivation	8 species covering 40 acres in four MPCAs.
23.	Establishment of community halls	25 community halls in four MPCAs.
24.	Preparation of Process Manual	1 Manual
25.	Drugs and cosmetic preparation	28 different medicaments and 5 types of cosmetic products
26.	Non-medicinal Product development	Fruit cordials and sweets from ginger and tamarind.
27.	Publication of *Ola* leaf transcriptions	1159 Transcriptions in 03 volumes
28.	Publication of monographs on 208 species of medicinal plants	04 Volumes
29.	Preparation of EBS field manuals	04 Manuals
30.	School curricula development	02 Teacher guides
31.	National policy for Indigenous Medicine sector	Policy document formulated
32.	Draft Intellectual Property Rights legislation related to medicinal plants	Draft legislation formulated
33.	Training modules on EBS	1 Module
34.	Other publications on medicinal plants	02 Booklets

		50 Leaflets 4 Posters
35.	Publications on IPR	1 Booklet
36.	Monthly Sinhala newsletters (*Osuthuru Visithuru*)	52 Issues
37.	English newsletters (*CONSMEP*)	6 Issues
38.	Action plan for mainstreaming Project activities by MIM	01 Action Plan
39.	Major projects for alternative income generation for communities (Naula – *Poshana* Madiraya, Rajawaka – Sales centre and Drug Production, Kanneliya – Kanneliya natural products, Bibile – Herbal raw materials)	04 Projects

ANNEX II

Ministerial and Management Responsibilities By Semester

Year and Semester	Ministerial Affiliation of DoA	Minister	Secretary	Commissioner of Ayurveda	BMARI Director	NITM Director	Project Director	Project Officers (Kanneliya,Bibile,Rajawaka,Naula)
1997 (2)	Provincial Councils and Cooperatives and Indigenous Medicine	Mr. Amarasiri Dodamgoda	Mr. Austin Fernando	Mr. W. Ellawala	Dr. Upali Pilapitiya	Mr. Cyril Pallegedara	Mr. Gunaratna de Silva	
1998 (1)								
1998 (2)								
1999 (1)	Health and Indigenous Medicine	Mr. Nimal Siripala de Silva	Mr. A. Abeygunasekara	Mr. Gamini Kariyawasam				Mr. S. Kalansooriya Mr. M. K. Cooray Dr. Malliyawadu Mr. Herath
1999 (2)			Mr. Thilak Ranaviraja				Mr. Cyril Pallegedara	
2000 (1)								
2000 (2)	Indigenous Medicine	Mr. Thissa Karalliyadda	Mr. Ariyawansha Ranaweera	Mr. Lal Rupasinghe	Dr. Lakshmi Senaratne (Acting)	Mr. N. W. Dissanayake		Mr. S. Kalansooriya Dr. S.Ranameramulla Mr. S.Kodithuwakku Mr. Herath
2001 (1)								
2001 (2)								
2002 (1)	Health, Nutrition & Welfare	Mr. P. Dayaratne	Dr. Regee Perera		Prof. Ajith Abeysekara	Mr. Asoka Malimage		Mr. S. Kalansooriya Mr. G K.Weerasekara Mr. S. Kodithuwakku Dr. Chandrabimba (Acting)
2002 (2)				Mr. Asoka Malimage		Mr. K. M. G. Bandara		
2003 (1)	Indigenous Medicine & Disaster Relief	Mr. Sarathchandra Rajakaruna	Mr. A. M. Chanrdapala			Mr. P. A. Abeysekara		Mr. S. Kalansooriya Mr. G.K.Weerasekara Mr. S. Kodithuwakku Mr. D.M.Dissanayake
2003 (2)							Mr. Andrew De Silva	Mr. S. Kalansooriya Mr.G.K. Weerasekara Mr. S. Kodithuwakku Mr. D.M.Dissanayake
2004 (1)	Indigenous Medicine	Mr. Thissa Karalliyadda	Mr. W. A. Karunasena	Mr. P. A. Abeysekara	Dr. Lakshmi Senaratne (Acting)	Vacant		Mr. S. Kalansooriya Mr. S. Kodithuwakku Mr. D.M.Dissanayake
2004 (2)				Mr Narampanawa		Mrs Jayatunga	Dr. Danister L. Perera	

ANNEX lll

List of Persons Consulted

Secretary, Ministry of Indigenous Medicine
Dr. Danister L. Perera
Mr. Vajira Narampanawa
Dr. Lakshmi Senaratne
Mr Gunarathne de Silva
Mr A.P. Dianis
Mr S.D. Abeywardena
Mr. Gamini Jayasinghe
Mr. Sisira Kumarasiri
Mr. Kapila Fernando
Mr. Cyril Pallegedera
Mr. Nimal Karunaratne
Dr. Janaki Gunaratne
Mr. Anandalal Nanayakkara
Mr. Ravi Algama
Mr. M.J..J. Peiris
Dr. Sumith Pilapitiya
Dr. Mervyn Joseph
Mr. Sarath Fernando
Dr. Ranjit Mahindapala
Mr. L.C.A.De S. Wijesnghe
Rajawaka CAMC Members
Bibile CAMC Members
Mr. Peter Rezel
Ms. Easha Ramachandran
Mr. Tissa Samaranayake
Mrs. Mallika Samaranayake
E.M.L. Consultants.

List of ACRONYMS used in the Report

BMARI	Bandaranaike Memorial Ayurvedic Research Institute
CAMC	Conservation Area Management Committee
CBO	Community-Based Organization
CDO	Community Development Officer
DoA	Department of Ayurveda
DWLC	Department of Wildlife Conservation
EBS	Ethno Botanical Survey
FD	Forest Department
GEF	Global Environmental Facility
GOSL	Government of Sri Lanka
IDA	International Development Agency
IPR	Intellectual Property Rights
IPR	Intellectual Property Rights
IUCN-SL	World Conservation Union Sri Lanka
MIM	Ministry responsible for the subject of Indigenous Medicine
MPCA	Medicinal Plant Conservation Areas
NGO	Non-Governmental Organization
NIE	National Institute of Education
NIPO	National Intellectual Property Office
NITM	National Institute of Traditional Medicine
PAD	Project Appraisal Document
PMU	Project Monitoring Unit
SLCSUMPP	Sri Lanka Conservation and Sustainable Use of Medicinal Plants Project
VPMC	Village Project Management Committees
WB	World Bank