



SEYCHELLES:

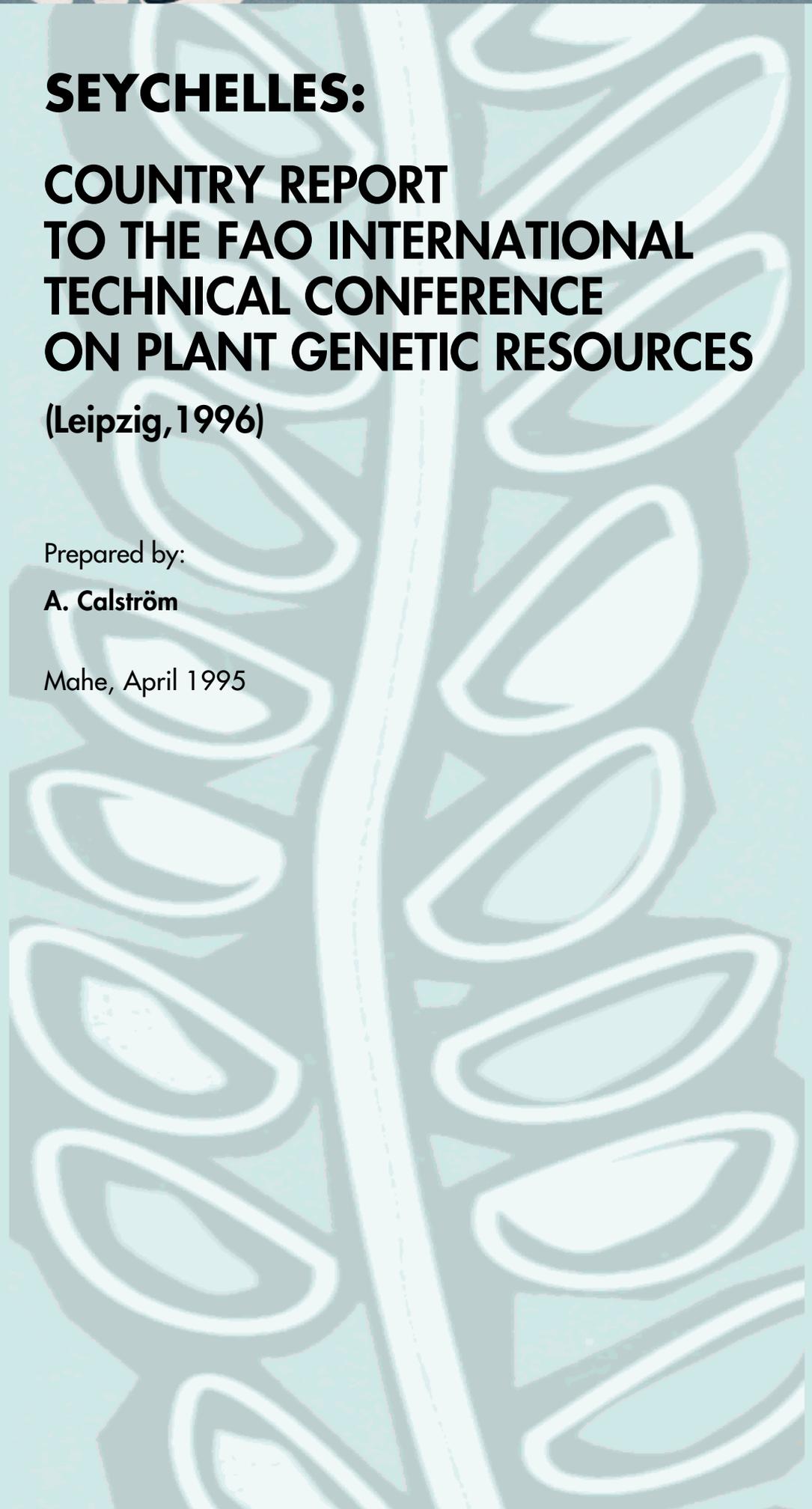
**COUNTRY REPORT
TO THE FAO INTERNATIONAL
TECHNICAL CONFERENCE
ON PLANT GENETIC RESOURCES**

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Note by FAO

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Table of contents

CHAPTER 1	
INTRODUCTION	4
1.1 THE AGRICULTURAL SECTOR	5
1.2 FOREST TYPES	5
CHAPTER 2	
INDIGENOUS PLANT GENETIC RESOURCES	7
2.1 FOREST GENETIC RESOURCES	7
2.1.1 Recognized Timber Trees of Commercial Value	7
2.1.2 Other Species of Commercial Interest	8
CHAPTER 3	
NATIONAL CONSERVATION ACTIVITIES	10
3.1 <i>IN SITU</i> CONSERVATION ACTIVITIES	10
3.2 <i>EX SITU</i> COLLECTIONS	11
3.3 STORAGE FACILITIES	12
3.4 DOCUMENTATION	13
3.5 EVALUATION AND CHARACTERIZATION	14
3.6 REGENERATION	15
CHAPTER 4	
IN COUNTRY USES OF PLANT GENETIC RESOURCES	16
4.1 USE OF PGR COLLECTIONS	16
4.2 BENEFITS DERIVED FROM THE USE OF PLANT GENETIC RESOURCES	17
4.3 IMPROVING PGR UTILISATION	17
CHAPTER 5	
NATIONAL GOALS, POLICIES, PROGRAMMES AND LEGISLATION	19
5.1 NATIONAL PROGRAMME	19
5.2 TRAINING	19
5.3 NATIONAL LEGISLATION	20
CHAPTER 6	
INTERNATIONAL COLLABORATION	22
CHAPTER 7	
NATIONAL NEEDS AND OPPORTUNITIES	25
CHAPTER 8	
PROPOSALS FOR A GLOBAL ACTION PLAN	27



CHAPTER 1

Introduction

The Republic of Seychelles is an archipelago occupying the western part of the Indian Ocean between 4 and 10 degrees south latitude and spread over an Exclusive Economic Zone (EEZ) of no less than 1.3 million square kilometres.

The total land area of the country is 452 square kilometres (45,250 ha) of which the granitic group accounts for 52.7%.

Some 40 islands are of granitic origin, including the main island of Mahe with its central massif rising up to 905 m. The other 60 or so islands are of coralline origin and are typically flat and rise only a few metres above sea level.

The climate is humid tropical with an annual mean temperature of about 27 degrees C. Relative humidity is high at about 80% through out the year. Annual rainfall on Mahe varies from 1,700 mm in the south to about 3,000 mm in the hills, with the outer islands receiving less rain than Mahe. Two main seasons are recognised; a wet season from November to April, characterised by intense downpours, high humidity and higher temperatures and a dry season from May to October with cooler temperatures, a steady breeze and lower humidity.

The population of the Seychelles is estimated at about 72,500 (August 1994) people with a natural growth rate of 2.1% per year. The distribution of population is very unequal; the main groups being concentrated on the three major islands of the granitic group.

GDP for 1991 stood at 1,244.0 million Seychelles rupees (national income). GNP per capita (R) stood at 26,972.

There is a 15.3 pupil/teacher ratio (1991) and literacy stands at about 83% (15 yrs and above).

Tourism is the main industry, contributing about 77 million pound sterling annually to the economy, about two thirds of all hard currency earnings and employing 18% of the workforce (source MISD).



1.1 THE AGRICULTURAL SECTOR

The agricultural sector (including fisheries) contributed an estimated 4% to GDP in 1992. The country has over the last four years produced 100% of eggs, 95% of poultry meat, 70% of pork and 20% of beef consumed locally. Agricultural development is now solely in the hands of the private sector as government has divorced itself from the role of producer to one of facilitator.

For the production of fruit and vegetable it is estimated that over the last five years 60% of the national consumption was produced locally.

The agricultural and fisheries sector provides formal employment to 8.6% of the working population. There are 280 full time farmers cultivating 2 hectare plots and about 700 part time farmers actively involved in agricultural development.

Farmers are dependant on the Ministry of Agriculture and Marine Resources for the supply of seeds, tools, fertiliser and pesticides which they purchase and the strategy of the ministry is to promote growth through sustainability of supply and effective institutional, infrastructural and financial support.

Traditionally, farmers used to intensify crop production during the May to October period which usually saw peak productions of lettuce and Chinese cabbage, however, there is a scarcity of vegetables in other months. Farmers are now investing in covered structures and irrigation equipment so as to extend the growing season.

There has been no major outbreak of pests and diseases, while persistent pests such as the leaf miner (*Liriomyza trifolii*), plutella and mites (*Tetranychus* spp.) are kept under constant control through insecticide use. A pressing problem is the Med Fruit fly (*Ceratitis capitata*) and it is envisaged that an eradication program will soon be implemented.

1.2 FOREST TYPES

The native vegetation was mainly forest and there were seven main types depending on altitude and rainfall. Only scattered remnants of once magnificent forests are now found on the higher slopes of Mahe and other granitic islands.



The present hillside vegetation is of five main groups:

1. Native forest.
2. Coppice with relict trees, but ground cover by woody plants fairly complete on rocky land or on practically uneroded soil.
3. Coppice of shrubs with a choking undergrowth of herbs - bracken fern (*Dicraopteris linearis*) or gazon trelle (*Panicum* spp.) or thick tufts of other inflammable grasses and sedges on partly eroded soils.
4. Coppice of shrubs with patches of bare eroding soil between them and associated herbs, on severely eroded soils.
5. Burnt land devoid of vegetation except stump regrowth on soil under active erosion.

In river valleys, marshes and catchment areas various species of palms and screw pine (*Pandanus* spp.) predominate. In undrained marshy areas behind plateaux mangroves of *Rhizophora*, *Avicennia* and *Briguiera* species predominate.

In the coastal areas veloutier (*Scaveola frutescens*) and takamaka (*Calophyllum inophyllum*) together with cedre (*Casuarina equisetifolia*) are common.

A major concern is the encroachment of exotic species such as *cinnamon* and *albizia*.



CHAPTER 2

Indigenous Plant Genetic Resources

2.1 FOREST GENETIC RESOURCES

2.1.1 Recognized Timber Trees of Commercial Value

- **Mimusops sechellarum**, Bwa-d-Nat. Status: Vulnerable.

Species endemic to the Seychelles. An important timber tree in the past much appreciated for boatbuilding and buildings. Also extensively used for furniture. Historically reaching heights up to 30m. It has been depleted to the point of becoming of very serious concern, owing to forest destruction and exploitation. It is now mostly found in small groups of stunted relict trees. Currently not used due to its rarity.

- **Camposperma sechellarum**, Bwa-d-Montanny. Status: Vulnerable.

Species endemic to the Seychelles. Timber tree used for making canoes. Possess a unique satin lustre and has been much used for indoor works. This species has suffered much form exploitation for timber and later for firewood. Now confined to single specimens or small groups of trees mostly in steep, inaccessible sites. Currently not used due to its rarity.

- **Vateriopsis sechellarum**, Bwa-d-Fer. Status: Endangered.

Species endemic to the Seychelles. Formerly a tall timber tree which produced an excellent, very hard and durable timber. Historically probably one of the co-dominant species in the canopy at low and intermediate altitudes. This species is in imminent danger of genetic erosion. Only about 50 specimens have been seen recently in 5-6 localities. Currently not used due to its rarity.

- **Drypetes riseleyi**, Bwa Mare Ti Fey. Status: Vulnerable.

Species endemic to the Seychelles. Produce a light, white and durable timber. Most of its natural habitat has been extensely altered or taken by comेतitors. There is almost no natural regeneration. Confined to dangerously small populations in a few isolated localities. Currently not used due to its rarity.



- **Dillenia feruginea**, Bwa Rouz. Status: Not threatened.

Species endemic to the Seychelles. Timber tree, used in the construction of houses. Currently not threatened by extinction but of some concern because of its restricted area of distribution. Managed in natural forests only.

- **Northea hornel**, Kapisen. Status: Not threatened.

Currently not threatened by extinction but of some concern because of its restricted area of distribution. A monotypic genus endemic to the Seychelles. Appreciated timber tree with a hard, durable, light-brown timber. Managed in natural forests only.

- **Hernandla nymphaeifolia**, Bwa Blanc. Status: Rare.

A coastal tree. Managed in natural stands only.

- **Heritiera littoralis**, Bwa-d-Tab. Status: Not threatened.

Some plantations occur.

- **Syzygium wrightii**, Bwa-d-Pomme. Status: Rare.

Historically said to have been common in the Seychelles but nowadays mostly confined to small groups of badly developed trees at inaccessible sites. Currently not used due to its rarity.

- **Intsia bijuga**, Gayac. Status: Vulnerable.

Most of the forests at low altitudes have been almost entirely cut down. Currently not used due to its rarity.

- **Calophyllum inohyllum**, Takamaka. Status: Not threatened.

A coastal tree much appreciated for construction and boatbuilding. Used in plantations.

2.1.2 Other Species of Commercial Interest

- **Lodoicea maldivica**, Koko-de-Mer

A monotypic genus endemic to the Seychelles. A species of commercial interest because of the fruits which are sold as souvenirs. Natural populations have been severely damaged by fires and habitat destruction. The regeneration might be affected by poachers and overcollecting of nuts.



- **Erythroxulon sechellarum**, Kafe Maron Ti Fey.

This potential medicinal plant is an endemic species related to the better known American cocaine-producing species. The species is still rather widespread within the Seychelles.

- **Begonia sechellensis**, Oseille Maron. Status: Rare

Endemic to the Seychelles, it is related to the commercial Begonias and might have some genetic importance.

- **Impatiens gordonii**, Belsamin Sovaz. Status: Endangered.

Endemic to the Seychelles, it is related to the ornamentals *Impatiens* species and might have some genetic importance.

- **Dracaena reflexa**, Bwa Chandelle Blanc

Indigenous to the Seychelles, it is related to the ornamental *Dracaenas*, commonly used as pot plants in Europe.

- **Angraecum eburneum**. Status: Rare.

With an endemic subspecies in the Seychelles it has a great potential as an ornamental plant with its large showy flowers.

This is also true for *Vanilla phalaenopsis* (Status: Rare), a supposed endemic to the Seychelles, with apparently closely related species on the African mainland.

There is currently no work being done with the *ex situ* cultivation of the endangered species, due to lack of funding, but there is a programme set up. There is an urgent need for outside help to implement this programme.

There are no obvious progenitors or known wild relatives in the Seychelles of any current or potentially important agricultural or pastoral plants.



CHAPTER 3

National Conservation Activities

3.1 *IN SITU* CONSERVATION ACTIVITIES¹

More than 40% of the area of the Seychelles has been set aside as conservation areas. No regulations have, however, been gazetted for the terrestrial national parks (except for Curieuse) and therefore they do not give full protection to the plants growing within these areas. Furthermore, certain protected areas are suffering the uncontrolled pressure of development, e.g. “multiple uses”. There is, however, at the moment a discussion in the Seychelles dealing with the problem. Probably some areas within the national parks will be set aside for conservation purposes only.

The native flora of the Seychelles has been heavily invaded by a wide range of introduced plant species, several of which are capable of invading apparently undisturbed ecosystems and accordingly threatens many of the endangered indigenous species with extinction. There is a programme set up dealing with the problem but no actions have been taken.

One problem in the Seychelles in common with all other small island ecosystems is to preserve areas of the more important habitat types sufficiently large to form self-propagating ecosystems. There is already a pronounced conflict between the demand for land for settlement and associated constructions and plant preservation and frequently only very restricted areas remain of the different habitat types. Many species with previously continuous populations have also been subdivided during the last century due to the alterations in land use.

Forest genetic resources

The Conservation and National Parks (GNP) Section of the Division of Environment in 1994 decided to implement a monitoring programme to explore the natural distribution of the endemic and threatened plant species of the granitic Seychelles. The information from this on-going project is stored in a database at CNP. This programme will include several species of potential commercial interest.

¹ The following two paragraphs (page 10) are the contribution of the Conservation and National Parks Unit within the Environment Division.



The reasons for rarity have been analyzed and documented for the endemic and threatened species at CNP, as well as *in situ* conservation possibilities and need for *ex situ* conservation needs.

***In situ* conservation activities²**

There is no programme or project for the conservation of landraces and traditional varieties.

3.2 EX SITU COLLECTIONS

The largest national plant genetic resources collections belong to the Ministry of Agriculture and Marine Resources, based at the Grand Anse Agricultural Research Station. The collection was started in 1979/1980 with the aim of supplying vegetative material for propagation and evaluation of varieties.

The collection is funded through the recurrent budget of the Crop Research and Development Division in the Ministry of Agriculture and Marine Resources, though not financially secure the Ministry sees it as a worthwhile investment.

The national collections are composed of imported and locally selected varieties of tropical fruits and rootcrops (see attached list).

The tropical root crop collection is considered the most important but does not receive preferential treatment in the gene bank.

More than 50% (50 - 70%) of the samples are utilised each year mostly by farmers and food producers locally.

There is a great imbalance *vis à vis* the material provided for use outside the country and material obtained from outside the country. 90% of the material were imported as *in vitro* culture.

² Subject covered from an agricultural perspective.



The national collection is small, however, in tropical fruits there are over 100 varieties of mango and avocado, mostly as introduced (exotic) varieties are available. This is not, however, representative of the diversity existing in this field and we would be interested in having new varieties as they are produced and we would be able to maintain them to acceptable standards.

Collection of material is done mainly on foreign visits or through institution requests. Evaluations are mainly geared at assessing adaptability to soil, climate, disease resistance and yield. We are not involved in breeding work, simply interested in adaptive screening for quality fruit, yield etc.

Our collection does contain materials we would like to discard and as they are of mostly introduced varieties and we do not have rights as such over them. We would like however to exchange some for some other material which we could easily accommodate.

3.3 STORAGE FACILITIES

The collections are stored under open field conditions which means that conditions are ambient therefore maintained at all times. We do not have *in vitro* material or those that are cryoscopically preserved and we do not have a base collection.

We are interested in maintaining the open field collections. We believe that they have served our purpose and will continue to do so for a long time. Other methods of storage, e.g. *in vitro* and cryoscopic etc. may be too expensive to sustain in the long run. We do not store materials for other gene banks simply because we do not have the facilities.

For new acquisitions we would rely on international arrangements (institutional contacts) and we would try to maintain the acquired material in field cultivation (genebanks) as we have been very successful in the past.

Field genebanks being the only material collection type we have are tied to government programmes (Ministry of Agriculture and Marine Resources) in propagating selected varieties subsequent to evaluation. They supply cuttings, setts, scion and budwood for propagation purposes. We are not involved in breeding work. We do not face any particular problem except that land is a limiting resource in the Seychelles. The Ministry of Agriculture and Marine resources' plans call for the maintenance of the field banks in the best possible state.



3.4 DOCUMENTATION

We used to have a card index, but we may have lost a lot of information at the turn of the 1980's with a change in administration. However, although we do not keep formal records we know of the better performing ones (tropical fruits) in relation to agronomic evaluations performed.

We have nonetheless catalogued all the sweet potato varieties grown locally (including those recently acquired) and attempts will be made soon to do the same with the cassava varieties being cultivated.

When received the samples have only passport data, while at distribution to farmers minimum data is given about the varieties except time to bearing and yield. However, a lot of information on flyers is given about cultivation, maintenance and care.

Probably only 20% of the samples are fully documented and there is a correlation between the quality of documentation and the use of samples.

Information is made available through mass media (tv, radio and newspaper) as users are mostly food producers and home owners. Information is also disseminated through the Extension Services.

There is no networking as such and there is no exchange. However, we are in contact with a number of Tropical Agricultural Institutions from which we obtain materials.

Documentation of in situ collection is poor. We need to allocate the job to a knowledgeable person e.g. a consultant who would do the work in a given time frame and put the information in an acceptable format. It would surely be cost effective and would be of priority to know what resources we have.

There may be problems in documenting wild relatives as cataloguing work locally is not complete. It may have been done to a fair extent but taxonomic expertise may be required for a short while.

Documentation is not duplicated and it is irregularly updated.



3.5 EVALUATION AND CHARACTERIZATION

There is no national programme as such on PGR, however, the Ministry of Agriculture and Marine Resources preoccupies itself with evaluation rather than characterization.

Evaluation using specific criteria is done by agronomists. IBPGR/IPGRI descriptors have been used once for sweet potato cataloguing where they were used as given. Descriptors for other crops are not available locally.

Farmers are involved in the evaluation of collections by on farm trials.

Probably 5-10% of the national collection has been characterized using international descriptors. 90% has undergone preliminary evaluation. Evaluation work is done at the Research Station by agronomists, then on farmer's plots is done in collaboration with the Extension Services.

Evaluation has been done at source, however, locally we are interested in (1) yield (2) disease and pest tolerance and (3) adaptability to climate and soil.

Evaluation data is not published while the major information to users is about cultivation practices and maintenance.

Information supplied by food producers after the on-farm trials may modify the number of new releases. Genebanks supplying the original material do get feedback from us on the basis of crop performance and acceptability (adoption) by food producers.

The main guide lines for material selection would be those with good characteristics or that have performed well under similar environments to that found locally. Furthermore, they have to have a high degree of acceptability or being highly likely that they would be acceptable. Expenditures can be justified as they effectively support the germplasm base. Outside assistance can be of tremendous value and any germplasm with implications to arable agriculture should be managed by the Ministry of Agriculture and Marine Resources.

We benefit enormously from international collaborations with such institutions as **CIP**, **INIBAP**, **IITA**, **CIAT**, **AVRDC** and **IRETA**. Distribution of selected material should be done through regional centres and small users like the Seychelles should make the initial contact.



All new material received is systematically evaluated and the parameters of importance noted have already been indicated. Characterization is not of priority and assistance may be required on that.

3.6 REGENERATION

All accessions are continuously regenerated in the collections. We have facilities to do so but it weighs down on our recurrent budget.

Root crops like sweet potato cannot be regenerated satisfactorily as it loses its characteristics through vine cuttings, however, we intend to keep storing such material and we would go back at source institutions for fresh supply. Other crop species can be regenerated adequately, however, some technical guidelines may be required to improve the procedures.

Regeneration is carried out by agronomists as the crops involved are easily regenerated. Land is scarce but we have been allocated a plot for that purpose.

The size of the regeneration samples is sufficient to avoid genetic drift. We use considerable amounts of sample and we regenerate often especially for root crop materials.

No accurate details of the regeneration history are available.

More than one generation of the same accession are maintained in the genebank, fresh and old material of the same accession are combined.



CHAPTER 4

In Country Uses of Plant Genetic Resources

Our material is used locally in arable agriculture, our medicinal plants have not found use outside of the Seychelles, while our forest resources are also used locally. Those acquired from other sources are also used in local arable agriculture.

4.1 USE OF PGR COLLECTIONS

Within the Ministry of Agriculture and Marine Resources, the Crop Research and Development Division uses the bulk of genetic resources kept. The medicinal plant project had collected and keep a certain amount of local plants for extraction of ingredients with medicinal properties. This was a local project with counterparts in Mauritius, Reunion, Madagascar and the Comores.

For government funded commercial activities (Ministry of Agriculture and Marine Resources), about 6 agronomists and technicians use the resources and for medicinal plants about 4 scientific technicians were working on the project.

About 50% of all plant genetic resources samples used in commercial activities come from our national collections and the major external sources are **CIP, CIAT, AVRDC, INIBAP, IITA** and **IRETA**.

In the genebank all species with potential commercial significance have been used and they will be used more frequently especially samples from tropical fruits as they are proven varieties and demand for those are on the rise. Their importance has increased gradually.

The Ministry of Agriculture and Marine Resources puts at the disposal of farmers tropical fruit, tropical rootcrop and tropical vegetable materials at subsidised prices through a national nursery and agricultural input store.

There is no national plant breeding programme but the Ministry introduces high yielding cultivars, varieties adapted to soil/climate with relative good pest tolerance.



The ultimate objective being to increase local food production mainly to meet national food needs.

No scientific plant breeding is done locally through lack of expertise, infrastructure and financial support.

The by products of in-country crop improvement are made available to farmers through mass media publicity as well as through Extension Services and they are available to all food producers and backyard farmers.

Farmers are not involved in plant breeding activities as they do not exist, while on farm trials are popular.

All improved varieties are available to farmers. Improved seeds are always imported from international seed firms.

4.2 BENEFITS DERIVED FROM THE USE OF PLANT GENETIC RESOURCES

No material in our collection is kept for foreign users.

It is difficult to assess if the country is deriving clear, direct benefits from indigenous plant genetic resources, as in arable agriculture there are few indigenous plants while the indigenous medicinal plants have yet to show their widespread uses. Very prolific, non indigenous varieties (tropical fruits and root crops) are held in the field genebanks, however, we guess there is no need to share the genetic resource with the country of origin.

4.3 IMPROVING PGR UTILISATION

The main achievements have been to improve the quality of produce of our commercial nurseries, as well as increasing yield and production of a number of arable crops.

The relationship between genetic conservation and improvement/utilisation systems has been satisfactory, however, in the domain of arable agriculture, we would acquire newer varieties as they are released, especially of tropical root



crops and fruits. There is no major local constraints in using genetic resources.

The range of varieties of tropical fruits, root crops and vegetables is probably the greatest value of plant genetic resources of the country and surely with continuous additions they will potentially be more valuable in the long term. They are by all means profitable now but we still have to touch all potential growers. This can be achieved through greater collaboration work with the Extension Services.

Technical expertise may be required for characterisation work in particular. We have been considering an *in vitro* lab; we presently do not have the expertise or the finance to support such a venture. Training of one or two of our staff may be valuable.



CHAPTER 5

National Goals, Policies, Programmes and Legislation

5.1 NATIONAL PROGRAMME

There is no national programme, however the crop Research and Development division within the ministry of Agriculture and Marine Resources maintains field genebanks from which it continuously draws selected material. The forestry division has nurseries of indigenous and exotic species for propagation while the Ministry of Education and Culture maintains a nursery of medicinal plants. All are government funded undertakings.

The field genebanks of arable crops (tropical root crops and fruits) maintained by the Ministry of Agriculture and Marine Resources provide material for the promotion of arable agriculture locally. It is financed by the recurrent budget of the Crop Research and Development Division of the same Ministry.

Forestry nurseries and genebanks are financed by the forestry division.

The plant genetic resources collections (field genebanks) are not protected by any legislation, or by national decree or by any international commitment. It is difficult to say whether any legislation giving the collections a legal status would increase their security. Even without legal protection the field genebanks are contributing enormously towards achieving national food security.

5.2 TRAINING

Most personnel are involved in various techniques of plant propagation and field cultivation. Some have been trained locally by more senior staff who were trained in Reunion (CIRAD) and Nigeria (IITA).



Constraints relate to overseas training opportunities while the most urgent training would be related to acquiring new techniques in propagating food crops like the breadfruit etc.

Skills available locally are really in the field of agronomic evaluation, propagation techniques and germplasm management.

Limited plant genetic resources training is available locally. International input (at international institutions) would be vital in certain domains while in country courses are very viable.

The Seychelles cannot offer regional courses in any aspects of plant genetic resources because of a lack of adequate expertise in any field.

Men and women have equal training opportunities in the Seychelles. Farmers activities are based on modern approaches.

We have had more or less the same staff in the domain of plant propagation, germplasm maintenance and regeneration.

5.3 NATIONAL LEGISLATION

Strict quarantine laws are in force, however, as long as the materials imported carry relevant phytosanitary documents there is no hinderance. There is a definite preference for clean *in vitro* material imports. Nonetheless seeds of tropical vegetable varieties are also imported. There is usually no delay as long as the materials imported are clean and have the required documents.

The quarantine control measures (legislation) are adequate, except that policing may not always be thorough.

National laws do not restrict the planting out of imported genetic resources and government does not provide incentives to farmers for the conservation of traditional varieties.

There is no legislation that governs the sale of and distribution of seeds, however government sells the bulk of seeds for arable agriculture through its agricultural supply stores.

Intellectual Property Rights (IPR) does not exist in the country. Its absence does not affect the genetic resources programme.



The effect of IPR legislation (local and foreign) on our genebank materials are not understood. No IPR legislation is envisaged in the near future so there may be no need for legislation.

No policy exists on exchange of plant genetic resources and no protocol has been worked out as to which ministry can export plant genetic resources. The Forestry division exports often. Probably technical experts can take any decisions in this field and as long as there is a request it can be entertained if the material is available. Few endemic species exist in small patches (especially true with the endangered spp. of plants).

Other policies

There are no incentives that have been formulated in this domain, however there is always a need for certified seeds which are currently met through foreign imports.

Government puts agricultural inputs at the disposal of farmers at almost cost price. Continuous evaluation is done on newly released varieties to see adaptability to soil, climate and yield is assessed. Eventually these new varieties are put at the disposal of farmers through sale of seeds. This applies for all arable agricultural crops.

Personnel of the Crop Research and Development division are always involved in plant genetic resources evaluation and once related through the extension services feedback from farmers are always taken into consideration.



CHAPTER 6

International Collaboration

We have benefited significantly from CGIAR, centres like IITA, CIP, CIAT but also from INIBAP, IRETA, AVRDC, mostly with tropical fruits and rootcrops.

A regional project financed by the EEC through EDF under the Indian Ocean Commission was initiated to evaluate the properties of medicinal plants of the regional countries namely Madagascar, Comores, Reunion, Mauritius and the Seychelles. A second phase is to be initiated early in 1995.

United Nations initiatives - UNCED

Seychelles was the second country to ratify agenda 21. While no steps have been taken to implement 14G *per se*, a number of projects are being formulated within the Indian Ocean Commission (IOC) to tackle Chapter 15 (conservation of biological diversity).

International agricultural research centres

CGIAR commodity centres, in particular IITA and CIP have made significant contributions in providing us with some of the elite rootcrops (tropical) germplasm which are doing extremely well locally. Besides we have had very good material from CIAT, INIBAP, IRETA and AVRDC. The majority of these materials have already been evaluated and are in the hands of the food producers. Materials from our tropical fruits collection have come from an assortment of international agricultural research centres.

In our case support from CGIAR centres come from further away as I am not aware of regional centres. Initial contact was made after reading publications from those centres. Many a time new releases were highlighted. At least three of our staff have been trained by IITA and it was from attendance at courses and in service training. All assistance sought from CGIAR centres have been provided, however it is nonetheless important to note that our demands have not been extraordinarily great.

We cannot handle extra activities as our capacities are small, our responsibilities are not enormous and we have been able to handle the load.



It is difficult to comment extensively on what new initiatives CGIAR commodity centres should be involved in as we are not knowledgeable about the potential of those centres. However, it would be appreciated if one of those centres could specialise in tropical fruits through stocking of tropical fruit *in vitro* plant materials. Letters and faxes to contact persons is the main mechanism of contact. Sometimes, initial personal contact have set off a long and amicable relation.

IPGRI'S most important role in the next decade is to promote vigorously their produce to potential consumers as a number of consumers are still unaware of these produce.

Regional research centres

We have obtained very good material from IITA, AVRDC, CIAT and CIP and although we may not have any special relationship with all of them, except IITA. Our views on the roles of CGIAR centres also apply to regional centres.

I am not aware of the Seychelles governments association with any regional research centre from which we have benefited immensely. Further more, a formal agreement between the government and the centre may not be absolutely necessary for the success of this relationship. If formal agreements with international centres facilitate our collaboration then they should be formalised.

Regional intergovernmental initiatives

As we do not have a national genetic resources programme we are not participating in any regional collaborative arrangements. However, ground work is being done around chapter 15 of the Agenda 21 to involve collaborative work with the IOC countries. There is definitely potential for further regional integrated plant genetic resources programmes as the collaboration would provide the experience, possibly expertise and resources to enlighten and strengthen national programmes.

We noted that our national programmes as such does not exist. Besides our activities are small and therefore these may not warrant transfer of responsibilities.



Bilateral intergovernmental initiatives

To date the Republic of Seychelles does not have any bilateral agreement on plant genetic resources with another country, neither is there an agreement with private companies.



CHAPTER 7

National Needs and Opportunities

Nationally, there is a need for an expert to undertake characterisation of the 90% or so of the materials in our field "genebanks". Those would comprise of two large groups of materials namely (i) tropical fruits and (ii) tropical rootcrops.

Furthermore, training is called for in plant propagation techniques especially in the propagation of such food crops as breadfruit. Besides, agronomic evaluation work still need to be performed on 5 - 10% of the materials in our field "genebanks".

Expert assistance and resources are required to further the work started with EEC funding to characterise all the endemic plants with medicinal properties, while support to the forestry division is required firstly to eliminate the fast encroaching of exotic species such as cinnamon and albizia; to propagate a number of endemic hardwood species as well as support conservation attempts of the 150 endangered endemic species.

Regionally and internationally CGIAR centres should become more prominent in meeting the requirements of the status they serve. They should advertise as much as possible products they have on offer; they should not leave it to chance for potential users to find out about their products. IITA's programme may be exemplary.

Our requirements from CGIAR centres are presently focused on acquiring new and improved tropical fruits and tropical rootcrop varieties.

We have depended enormously on CGIAR and IARC centres for the provision of the first two types of materials while our contacts with international commercial seed firms producing tropical vegetable seeds have kept us abreast of new releases which are subsequently submitted to agronomic evaluation. We, nonetheless, have been supplied recently with specific vegetable seeds (tomato, eggplant and hot and sweet pepper) by AVRDC and we hope to broaden their relationship. Note that in relation to tropical fruits and root crops IITA and CIP have made tremendous contributions in providing us originally with *in vitro* materials, a large percentage of which have proven to be prolific yielders under our conditions. They have, in deed, provided us with materials that can potentially increase food production locally and we are on the way of promoting those vigorously with food producers.



We need to broaden our relationship with such centres as IITA to the point that there is strong two way communication putting us in a position that we immediately become aware of new releases and they be informed of performance results of these new releases.

A regional centre closer to the Indian Ocean islands may effectively bring us even closer. We would anticipate that the CGIAR centres would be able to cater for a wider range of tropical fruit species than what are presently available.



CHAPTER 8

Proposals for a Global Action Plan

- Characterisation of all the materials within the field gene banks within the Ministry of Agriculture and Marine Resources.
- Characterisation of wild relatives
- Assist the Forestry Division within a programme of action to reduce significantly or eliminate altogether highly competitive introduced species namely cinnamon and albizia.
- Assist the Forestry Division in the propagation of endemic hardwood species as well as assist in the protection and conservation of about 150 endemic plant species to maintain biodiversity.
- Assist the local authorities to characterise about 200 medicinal plants. Seychelles has formulated an Environment Management and Protection Plan (EMPS) which has a significant component on biodiversity and Coastal Zone Management. The biodiversity aspect will entail protection of the endemic species and propagation of endemic hardwoods.