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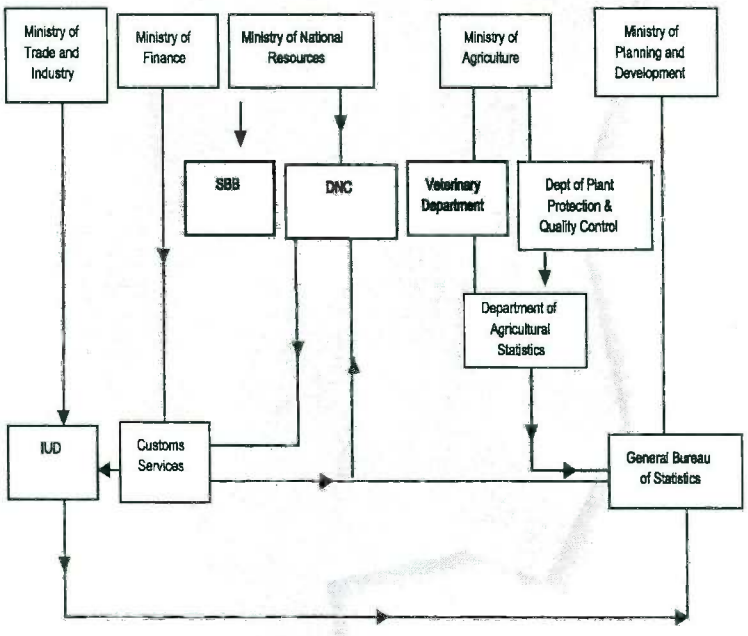
FORESTRY DEPARTMENT

NON-WOOD FOREST PRODUCTS PROGRAMME

DATA COLLECTION AND ANALYSIS RELATED TO NON – WOOD FOREST PRODUCTS

A PILOT STUDY IN SURINAME



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A PILOT STUDY IN SURINAME

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"Data Collection and Analysis for Sustainable Forest Management in ACP Countries – Linking National and International Efforts"
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FOREWORD

The project *Data Collection and Analysis for Sustainable Forest Management in ACP Countries – Linking National and International Efforts* (GCP/INT/679/CE) was carried out in the context of the European Commission (EC) – FAO Partnership Programme in order to promote the sustainable use of trees and forests in African and Caribbean countries. The project aimed to contribute to the development of policies which would integrate in a balanced way the socio-economic and ecological aspects of the forestry sector.[1]

The use of non-wood forest products (NWFP) was studied through two main activities:

1. The documentation of information on the socio-economic importance and ecological impact of the use of NWFP in African and Caribbean countries. The results are presented in various working papers (FAO, 2001; FAO, in prep.) and on the Internet.[2]

2. The development of methodologies for improved collection, analysis and maintenance of statistical data related to NWFP. These methodologies should:

- provide reasonable estimates on the production, consumption and trade in NWFP;
- be widely applicable and relevant to other Caribbean countries;
- be cost effective, flexible and feasible given the limited human resources available.

Pilot studies on NWFP were carried out in Cameroon, Madagascar, Uganda, Suriname and Zimbabwe.

This study was carried out in Suriname by Mrs Caroline M. Rahan-Chin, Faculty of Technology, Adek University of Suriname, Paramaribo with the support of students of the University of Suriname. At FAO headquarters, the study was coordinated by Sven Walter, Programme Promotion and Development of NWFP, and Johan Lejeune, Forestry Planning and Statistics Branch. In addition, Jamal Bahdon, Tina Etherington, Daniela Mercuri, François Ndeckere-Ziangba, Marco Perri, Melly Preira, Patrick So and Paul Vantomme contributed to the implementation of this study. In Suriname, the study was coordinated and supervised by Fritz Horsten, Technical Advisor to the FAO Technical Cooperation Programme Project *Forestry Advisory Assistance to the Ministry of Natural Resources in Suriname* (GCP/SUR/001/NET). Support was also provided by the FAO Representation in Trinidad and Tobago, which is in charge of Suriname. Their efforts are appreciated.

Furthermore, we would like to thank the European Commission for the financial support given for this work through the Tropical Forestry Budget Line B7-6201/97 and B7-6201/98-08/VIII/FOR. It is hoped that readers will find this publication useful and that it will be a start to the continuous update of information on NWFP.

[1] More information on the project is available at http://www.fao.org/forestry/foris/page.jsp?page_id=2324&lang_id=2&start_id=2711.

[2] The country profiles are incorporated into the Forest Resource Information System at http://www.fao.org/forestry/fo/country/nav_world.jsp?lang_id=2&geo_id=none. FAO (2001) is available at http://www.fao.org/DOCREP/003/y1515b/y1515b00.HTM.

SUMMARY

In many Caribbean countries, non-wood forest products (NWFP) play a significant role in livelihoods by providing key subsistence products and income. In Suriname, the most important NWFP are birds (macawas and parrots), other living animals, apes, and plants used as medicines and utensils.

Despite its socio-economic importance, the availability of statistical data on the social, economic and ecological aspects of NWFP is very limited. Therefore a study entitled *Data collection and analysis related to NWFP - a pilot study in Suriname* was carried out within the context of the European Commission - FAO Partnership Programme *Data collection and analysis for sustainable forest management in ACP countries - linking national and international efforts*. The main objective of the study was to review available information on NWFP in Suriname and to propose a methodology to improve the quality and quantity of statistical data on NWFP in the country.

In Suriname, NWFP are referred to as 'forest by-products', defined as "all products of plant origin, which can be collected without bringing any damage to the tree, plant or forest". In order to provide a framework for other important forest products such as animals and animal products, small woods and forest services (i.e. water), a new definition is proposed using the term non-timber forest products.

Statistical data on NWFP are scarce and mainly available for exported NWFP. Selected NWFP are included in the international Harmonized Commodity Description and Coding System (HS) as well as in the national Automated System for Customs Data (ASYCUDA). Information is based on the analysis of licenses and permits which are issued by various governmental organizations. The available data mainly show the economic value of exported products and are insufficient for appropriate monitoring and evaluation of the management of natural resources.

The study suggests a new institutional infrastructure (under the leadership of the Foundation for Forest Management and Production Control) and a refinement of data to be collected. The proposed methodology for improved statistical data collection analysis consists of 11 steps: i) agree upon the institutional infrastructure; ii) assign and agree upon points of data collection; iii) identify data needed; vi) design a new NWFP database; v) establish links to relevant existing databases (i.e. ASYCUDA and LOGPRO); vi) develop data collection forms; vii) develop an identification guide; viii) convert data used for the NWFP database; ix) establish a working group; x) train concerned stakeholders; xi) develop Forest Management and Monitoring Plan.

The study recommends implementing the proposed methodology in four phases. Phase 1 would consist of an intensive discussion process in which issues such as the definition and classification of major NWFP are addressed. Phase 2 would focus on the establishment of an inter-institutional working group to coordinate the process and on the identification of important NWFP. During phase 3 the proposed database would be developed. Finally, during phase 4, an automated database would be in place, which would facilitate the analysis of key information on NWFP.

RÉSUMÉ

Dans la plupart des pays africains, les produits forestiers non ligneux (PFNL) jouent un rôle prépondérant dans la vie de la population car ils fournissent des produits-clés de subsistance et de revenu. Au Suriname, les PFNL les plus importants incluent les oiseaux (*macawas* and perroquets), autres animaux vivants, les singes, les plantes médicinales et les outilles.

Malgré l'importance socio-économique de ces produits, la disponibilité des données statistiques sur les aspects sociaux économiques et écologiques est limitée. L'étude *La collecte et l'analyse des données statistiques sur les PFNL - une étude pilote au Suriname* a été réalisée au Suriname dans le cadre du Programme de Partenariat Commission Européenne-FAO *Collecte et analyse de données pour l'aménagement durable des forêts: joindre les efforts nationaux et internationaux* dans le but de revoir les informations disponibles au Suriname et de proposer une méthodologie appropriée pour améliorer la quantité et la qualité des données statistiques sur les PFNL.

Au Suriname, PFNL sont dénommés 'produits accessoires de la forêt', définis en tant que "tous les produits de l'origine végétale, qui peuvent être collectés sans mettre en danger l'arbre, la plante ou la forêt". Afin de fournir un contexte légal pour d'autres produits importants de la forêt tels que les animaux et les produits animaux, petits bois et des services de la forêt comme eau, une nouvelle définition est proposée en utilisant le terme "produits forestiers autres que le bois d'œuvre" (*non-timber forest products*).

Les données statistiques sur PFNL sont rares et principalement disponible pour les produits exportés. Le commerce de quelques PFNL est documenté par le système harmonisé de désignation et de codification des marchandises (Système harmonisé ou SH) et le système automatisé pour les données de douane (ASYCUDA). L'information est basée sur l'analyse des licences et des permis délivrés par de divers organismes gouvernementaux. Les données disponibles montrent principalement la valeur économique des produits exportés. Elles sont insuffisantes pour un suivi et une évaluation approprié de la gestion des ressources naturelles.

L'étude suggère une nouvelle infrastructure institutionnelle (sous le *leadership* de la Fondation pour la Gestion de Forêt et le Contrôle de Production) et une identification des données appropriées à rassembler. Au total, la méthodologie proposée pour l'analyse statistique améliorée de collecte de données est composée de 11 étapes: i) convient de l'infrastructure institutionnelle; ii) identifie et convient des points de collecte de données; iii) identifie les données requises; vi) développe la nouvelle base de données sur les PFNL; v) établi des liens aux autres bases de données relevants (c.-à-d. ASYCUDA et LOGPRO); vi) développe des formes de collecte de données; vii) développe une guide d'identification; viii) converti les données utilisées pour la base de données; ix) établi un groupe de travail; x) fait une formation des acteurs concernés; et xi) développe un plan de gestion et de suivi des forêts.

L'étude recommande la mise en ouvre de la méthodologie en quatre phases. Phase 1 se compose d'un processus intensif de discussion, dans lequel des questions telles que la définition et la classification des PFNL sont abordées. Phase 2 se concentre sur l'établissement d'un groupe de travail inter-institutionnel pour coordonner le processus et l'identification des PFNL importants. Pendant la troisième phase, la base de données proposée est développée. En conclusion, pendant la phase 4, une base de données automatisée est en place, qui facilite l'analyse des informations clés sur les PFNL au Suriname.

ABBREVIATIONS

ABS	*Algemeen Bureau voor de Statistiek in Suriname* (General Bureau for Statistics in Suriname)
ACP	African, Caribbean, Pacific
AdeKUS	Anton de Kom University of Suriname
ASYCUDA	Automated System for Customs Data
BBS	National Herbarium of Suriname
BGVS	*Bureau voor geneesmiddelen voorziening* (Bureau for Medicines for Suriname)
CELOS	Center for Agricultural Research in Suriname
CI-Suriname	Conservation International Suriname
CITES	Convention on International Trade of Endangered Species of Wild Flora and Fauna
DNC	Department of Nature Conservation of the Suriname Forest Service of the Ministry of Natural Resources (= NB)
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
FMPC	Foundation for Forest Management & Production Control (= SBB)
FOB	Free on Board Price
HS	Harmonized Commodity Description and Coding System
IATA	International Air Transport Association
IUD	*Dienst der Invoer en Uitvoer Deviezen controle* (Division of Import-, Export and Foreign Currency Control of the Ministry of Trade and Industry)
IT	*Internationaal Handelstransactie*
LBB	*Dienst Bosbeheer* (= SFS)
LOGPRO	Logging Program of SBB
NB	*Afdeling Natuurbeheer van LBB van het Ministerie van Natuurlijke Hulpbronnen* (= DNC)
NGO	Non Governmental Organization
NTFP	Non-Timber Forest Products
NVB	National Woman Movement
NWFP	Non-Wood Forest Products
NZCS	National Zoological Collection in Suriname of the AdeKUS
SBB	*Stichting Bosbeheer en Bostoezicht* (= FMPC)
SFS	Suriname Forest Service (= LBB)
SH	Système harmonisé
UNAMAZ	Universidades de Amazonia
WWF	World Wild Fund for Nature
BGVS	*Bureau Geneesmiddelen Voorziening Suriname*(Bureau for medication supplies in Suriname)

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1. INTRODUCTION

In Suriname, rural communities of indigenous people and maroons living in rainforest areas have traditionally used non-wood forest products (NWFP) as a source of medicines, utensils and income.

Earlier studies (Asraf and Hilgerink, 2000; FAO, 1999a; FAO, in prep.) highlighted the importance of NWFP such as live animals, bushmeat and medicinal plants. These studies also stressed the lack of statistical data on NWFP in Suriname.

In order to improve the availability of statistical data on NWFP, a pilot study was carried out in Suriname under the EC-FAO Partnership Programme. The objective of this study is to elaborate, improve and test methodologies for the collection, analysis and maintenance of statistical data on NWFP in Suriname.

This methodology should:

- provide reasonable estimates of production, consumption and trade in NWFP;
- be widely applicable and relevant to other Caribbean countries;
- be cost effective, adaptable and feasible with the limited human resources available.

The current status of NWFP in Suriname was reviewed using information from legislative and other relevant documents. Available statistical data was collected and reviewed to identify NWFP of major importance in Suriname.

Using information gathered during interviews with different stakeholders, the current method of data collection and analysis of NWFP in Suriname was documented. Based on this documentation, a methodology is proposed which aims to improve the availability of statistical data on NWFP in Suriname.

This study will focus on NWFP which are commercialized on the international level. Once NWFP enter international trade circuits, it can be assumed that the use of these products is increasing. This increase requires appropriate regulations and control mechanisms. In order to assure the sustainable management of resources providing NWFP and to define rules, regulations and control mechanisms, statistical data on the production and commercialization of NWFP are essential. Local consumption of and trade in NWFP, although of socio-economic importance, are difficult to assess and were considered to have little impact on forest resources. Therefore, the proposed methodology will focus on internationally traded rather than locally used NWFP.

2. CURRENT STATUS OF NWFP IN SURINAME

2.1 Legislation and regulations

In Suriname, NWFP are normally referred to as 'forest by-products' and are mentioned in the following legislative documents (Asraf & Hilgerink, 2000):

- Timber Act 1947 (expired in 1992);
- Act on the Suriname Forest Service (LBB) – 1947 (expired);
- Act on Balata (1952-GB no.58): Act on regulations for harvesting of natural gum of Bolletrie, *Manilkara bidentata Sapotaceae,* as a forest by-product;
- Nature Conservation Act 1954;
- The Forest Management Act 1992;
- Development Plan for Suriname 1993-1996 and 1999-2003; and
- Negative list resolution (1999) regarding export of plants and animals.

The Forest Management Act 1992 regulates forest exploitation and management, logging, primary wood processing and collection of forest by-products. The authority appointed to enforce this act under the Ministry of Natural Resources is the Foundation for Forest Management & Production Control (FMPC), known in Suriname as *Stichting voor Bosbeheer en Bostoezicht* (SBB). Most of the activities of this management authority were formerly with the Suriname Forest Service (SFS) known as *Dienst Bosbeheer* (LBB).

The Department of Nature Conservation (DNC) of the SFS is the management authority for wildlife and nature reservations. This department keeps records of trade in wild animal species. It is also the management authority for the Convention on International Trade of Endangered Species of Wild Flora and Fauna (CITES). Inclusion of the DNC in the SBB is being considered for the near future. At the moment, SBB is in charge of the management of forest by-products of plant origin.

2.2 Definition of NWFP and related terms

FAO itself does not have one term or definition for NWFP and discussions on this subject are still ongoing (Vantomme, 2000).

The International Expert Consultation on NWFP, held in Indonesia in 1995, defined NWFP as "goods of biological origin other than wood, as well as services, derived from forests and allied land uses" (FAO, 1995a).

Another definition used by FAO (1995b) defines NWFP as "all the biological material (other than timber and firewood) that may be extracted from natural ecosystems, managed plantations and semi-wild trees growing on farm-lands and be utilized within the household, be marketed, or have social, cultural or religious significance". Both plant and animal products are included. This definition describes the forest and similar land uses in a more comprehensive way and sets limits as to what can be considered a NWFP.

In an attempt to harmonize terminology related to NWFP and a global definition of NWFP, FAO proposed a new definition of NWFP. According to this proposal, "NWFP consist of goods of biological origin other than woods derived from forests, other wooded land and trees outside the forest." (FAO, 1999b)
This definition contains the three essential elements of a NWFP (FAO, 1999b):

- Non wood: All woody raw materials are excluded;

- Forest: NWFP are derived from forests and similar land uses, including plantations, shifting cultivation plots or other agroforestry systems;
- Products: Corresponds to goods, which are tangible and physical objects of biological origin such as plants, animals and their products. Forest related services such as eco-tourism related activities, bioprospection and hunting are excluded.

In the Surinamese Forest Management Act of 1992, NWFP are actually referred to as 'forest by-products', which are defined as "all products of plant origin, which can be collected without bringing any damage to the tree, plant or forest" (Forest Management Act, 1992).

The Forest Management Act does not clearly define what is actually meant by "...without bringing any damage to the tree, plant or forest". It is not clear what kind or extent of damage or what causal effect is allowed.

Not included in this definition, and therefore not regulated by the Forest Management Act, are fauna and forest related services. However, the Act includes small woods used as tools and household equipment, woodcarvings, lianas and tree bark.

Another problem arises in that different interpretations can be given to the term 'forest'. 'Forest', according to the Forest Management Act (1992), includes "All land, grown with trees, shrubs and other vegetation, that is suitable for wood harvesting and/or collection of forest by-products and/or supports the protection of soil, maintains the stability of living environment or recreation, inclusive all land that is reforested or that can to the judgment of the Minister, contribute to the realization of these objectives, this and other excluded:

- Open land within a forest stand of which the surface of the open land is larger than the surface put down in an act.
- Land used for agriculture, mining, buildings, permanent communities or other purposes not included in this Act, unless this use or purpose does not disagree with any enforced national or regional development plan as meant in the planning Act.
- Land /areas pointed out by the Nature Conservation Act of 1954".

Based on this definition it is difficult to determine where to draw a definite line between agricultural-based products and forest products.

Since land used for agriculture is excluded from the definition of what constitutes a forest, products collected on shifting cultivation plots cannot be regarded as forest by-products. Also, products considered internationally to be NWFP such as fruits and medicinal plants are not only collected in rainforests but are sometimes also collected or produced from plants or parts of plants from commercial plantations, household backyards, shifting cultivation plots or agroforestry systems.

Due to these discrepancies in definitions in the legislation of Suriname on forest by-products and agricultural products, a clear line between statistics is difficult to make. In the case of fruit, for example, Maripa (*Maximiliana maripa* Drude) and Awara (*Astrocaryum segregatum* Drude syn. *A. vulgare* Martius) are collected in the forest but statistical data is kept by the Department of Statistics of the Ministry of Agriculture (grouped under 'fruits').

When human intervention through domestication, cultivation and/or breeding has occurred, the products are usually considered as agricultural-based products and therefore placed under the responsibility of the Ministry of Agriculture. The term 'by-product' refers to the way the products are valued rather than or specifying the type of a given product. Collection of products in the forest indicates that they are derived from a biological organism that genetically can still be considered a wild type because it can freely crossbreed in the wild.

These products are therefore placed under the responsibility of the Ministry of Natural Resources.

Another aspect related to the definition of NWFP concerns the inclusion of forest services. These forest services result from biological processes such as the release of oxygen and uptake of carbon dioxide by the tropical rainforest and the positive effect on water supply and the global environment. Although this term is sometimes used when referring to activities related to eco-tourism, no official definition for forest services is yet available in Suriname. As both the terms NWFP and forest by-products refer to goods from forests, forest services are not included in this study. However, the potential value of forest services should not be ignored but rather taken into account when promoting the NWFP sub-sector.

Following FAO (1995, see above), NWFP are defined in this study as follows:

> "NWFP consist of goods of biological origin other than wood, as well as services, derived from forests and allied land uses".

This definition is more comprehensive and has also been adopted, although not officially, by some of the actors in the forest sector in Suriname. Animals and services related to the forest are included, as is the broader land use perspective when considering the NWFP.

2.3 Classification of NWFP

A major problem is the existence of different classification systems used for forest products as defined by Surinam law. For international trade purposes, a clear and internationally accepted categorization of groups of products in Suriname is therefore required.

For the purpose of this study five main classes and eight related categories of NWFP were developed which group products with similar uses (see Table 1). For the purpose of this study, only the first three classes were considered.

Table 1: Overview of NWFP classes and categories used in this study

NWFP Class	Description	Main Category	Description
1	Live animals or plants derived from the forest	1	• Live animals • Live plants
2	Parts of animals or plants derived from the forest	2	• Animal products • Plant products
		8	Forest fruits and other products for consumption
3	Products derived from animals or plants from the forest	3	Mucilages, gums, resins and thickeners
		4	Chemical industry
		5	Flower bouquets and flower arrangements
		6	Plaiting and brushes
		7	Textiles
4	Forest related services		
5	Other forest related products not directly derived from animals or plants but which are the result of natural biological and other processes in the forest		

2.4 Organizations and Institutions involved in the collection and analysis of statistical data

Governmental organizations

Data related to NWFP and forest by-products in Suriname are recorded by the following governmental institutions:

Department of Nature Conservation (DNC), Suriname Forest Service (SFS/LBB), Ministry of Natural Resources

DNC collects data on the trade of wild animal species which is recorded according to the CITES trade rules. As this department issues permits for trade in wild animals and collection of plants, it also keeps records regarding licenses issued by the Ministry of Natural Resources (licenses to export animals and forest by-products as well as hunting licenses).

The main aim of data collection for DNC is to have an overview on the:

- earnings for the Ministry of Natural Resources;
- trade volumes; and
- number of species exported (relevant for the scientific authority in order to take counter measurements when the population is declining).

The collected data is used by the Ministry of Natural Resources, through the DNC, to determine the total quota of animals to be exported as well as the quota per exporter. The quota for Suriname for export of animals is also determined by CITES on advice of Suriname. Analysis of population changes of animals is not yet done. The statistical data that is collected is not adequate to perform this analysis.

As part of its responsibility as a CITES Management Authority, DNC developed preliminary export regulations concerning plants and flowers in order to prevent that certain wild plant species become endangered due to their export. The objectives of these regulations are to:

- prevent the overexploitation of wild plants as a result of their export;
- assure the provision of socio–economic benefits in a sustainable way (e.g. employment, income, earnings of foreign currency); and
- define the number of plants and animals that can be exported per person or group of persons with or without a permit and the value of these products.

However, no information on plants is kept or processed at the moment and no permits regarding plants have been issued for the year 2000.

Monitoring of wildlife and plant populations is not yet done because of lack of:

- personnel;
- information on population status and trends regarding protected species;
- research; and
- funds to carry out monitoring activities.

DNC is in the process of developing a database for population analysis and management. The type of data to be collected regarding the protection, conservation and preservation of plants and animals can be seen in the example in chapter 4. For management of the resource, data on the value, volume, weight, number, family, genus, species, location of collection and/or production of exported products are important.

Foundation for Forest Management & Production Control (FMPC/SBB), Ministry of Natural Resources

SBB is the appointed authority for forest management and control. It is, among others, in charge of forest by-products of plant origin. In the future, DNC may be incorporated into SBB.

Data collection on NWFP by the SBB aims at:

- obtaining an overview on the use of NWFP in Suriname;
- collecting revenues for the government from the export of NWFP as a natural resource;
- preventing the illicit use of natural resources; and
- promoting the sustainable use of forests.

National Herbarium of Suriname (BBS), Anton de Kom University of Suriname (AdeKUS)

BBS is in charge of the botanical determination of exported plant species. It verifies if exported species are on CITES appendices 1 or 2. This division of the AdeKUS does not keep records on NWFP, for which permits are requested or issued. BBS is a potential point for data collection.

National Zoological Collection in Suriname (NZCS), AdeKUS

NZCS determines the exported animal species and verifies if these species are on the CITES appendices 1 or 2. This division of AdeKUS does not keep records on NWFP, for which permits are requested or issued. NZCS is a potential point for data collection.

Center for Agricultural Research (CELOS), AdeKUS
CELOS has developed a forest management system which aims to regulate timber production.

Veterinary Department, Ministry of Agriculture
The Veterinary Department issues animal health certificates, which are mandatory to obtain permits for export of live animals. Other activities include quality control of bushmeat for export and disease monitoring. Data are submitted to the Department of Agricultural Statistics of the Ministry of Agriculture.

Department of Plant Protection and Quality Control, Ministry of Agriculture
The department issues health certificates for plants and related products. Disease monitoring on the national level is one of its main activities but due to shortages of personnel and materials these activities cannot be carried out adequately. Data collected mainly concern agriculture-based products. Some products derived from forests are categorized as plants or plant parts from the non-traditional ornamental sector, including medicinal plants. Data are submitted to the Department of Agricultural Statistics of the Ministry of Agriculture.

Customs Service of Suriname, Ministry of Finance
All official exports and imports pass through the customs service. The customs service uses the international product classification system: the Harmonized Commodity Description and Coding System (HS). This system consists of an eight-digit-code grouped by similar uses: the first four digits are internationally used, the following two are determined by the European community and the last two are defined by Suriname. This multipurpose international nomenclature was developed by the World Customs Service and adapted to the Suriname situation. The changes were made in 1994 in consultation with different parties such as Ministries, consumer groups and exporters, and resulted in the Act on Customs Tariffs (1996).

The customs service also maintains an automated system referred to as the ASYCUDA coding system. This system is based on customs tariffs and is the only officially automated database system in Suriname used for collection of international trade statistics. The ASYCUDA system has the same 21 sections as the HS that was issued by the Customs Co-operation Council.

There are no specific headings referring to NWFP or forest by-products in the HS or in the ASYCUDA system. For further information on the ASYCUDA and HS system, see also chapter 2.5.1.

In addition to DNC and SBB, statistics are kept and/or distributed by the:
- General Bureau of Statistics (ABS) of Suriname, Ministry of Planning and Development; and
- Department of Agricultural Statistics of the Ministry of Agriculture.

Non-governmental organizations
World Wide Fund for Nature (WWF)
WWF finances studies on forest management, wildlife exploitation and conservation.

Conservation International (CI)
CI Suriname conducts and funds studies related to nature conservation, biodiversity, medicinal plants and traditional knowledge on medicinal plants. Recently, the Suriname Conservation Foundation was established with the objective of managing the 'Central Suriname Nature Reserve' and other nature conservation activities and projects. This foundation supports all activities related to conservation and preservation of biodiversity in Suriname.

Between governmental and non-governmental organizations, information is exchanged regarding procedures or protocols which are needed to acquire permits especially for NWFP animals. However, there is no formal collaboration structure for information exchange.

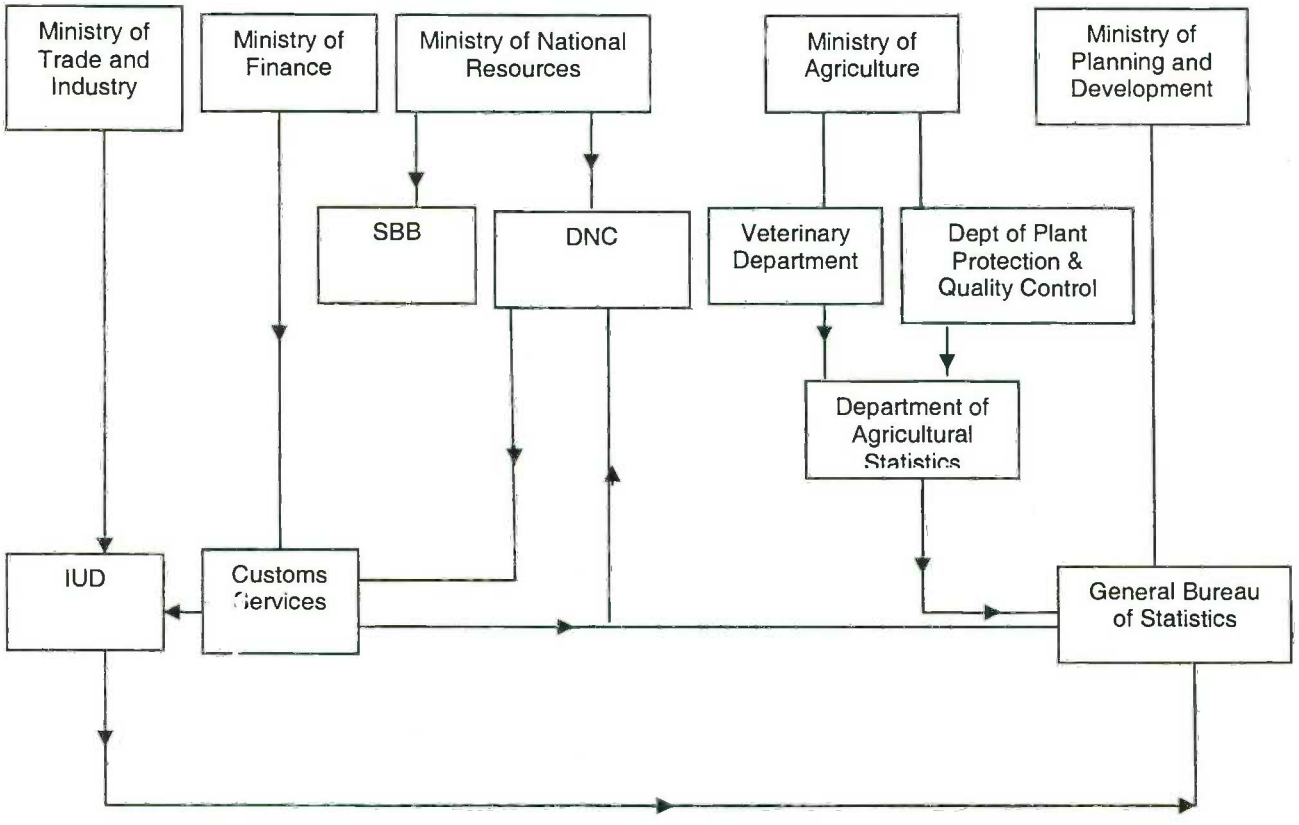
Private sector organizations
Odany Jewa
Odany Jewa is a well-known, registered, private company in Suriname producing traditional herbal medicines and promoting the use of medicinal plants.

Association of animal exporters
This association brings together exporters of wildlife. However, not all exporters are members of this association.

Other small businesses
Small-scale enterprises mostly consist of indigenous communities or groups within these communities that are involved in wildlife collection. Most of the products are sold to registered exporters.

However, sometimes these products are also sold to non-registered, but well paying, exporters and smuggled to Guyana and French Guyana. Control on poaching is almost impossible. As these products do not pass through the customs service, no data is collected on this illegal trade.

Figure 1: Diagram of the institutional infrastructure related to statistics on NWFP in Suriname.



2.5 NWFP OF MAJOR NATIONAL IMPORTANCE

Information on NWFP was gathered from statistics of the ABS, a literature review, and personal communications/interviews. For further information on NWFP in Suriname see also FAO (1999a, in prep.).

2.5.1 ASYCUDA Database

As already stated in chapter 2.4, products included in the ASYCUDA database are not referred to as NWFP. However, based on the definition of NWFP and the description of the different species and products in the ASYCUDA database, NWFP included in the database could be identified and are listed in Table 2.

Table 2: NWFP listed in the ASYCUDA database

Category	Post	HS Code	Description
1. Live animals	01.03	0103.9090	Other living pigs (wild boar)
	03.01	0301.1090	Exotic fish (angelfish)
		0301.9090	Other living fish (piranha)
	01.06	0106.0020	Pigeons (*Columbina minota)*
		0106.0030	Turtles
		0106.0060	Apes (*Saguinas midas)*
		0106.0070	Macaws and parrots
		0106.0080	Other birds (*Ramphastos vitellinus)*
		0106.0090	Other living animals
2. Animal products	16.02	1602.2000	Prepared and preserved livers of all animal species
	02.08	0208.0010	Other edible animal waste fresh, frozen etc. (brains)
		0208.0020	Frogs legs
		0208.0090	Other meat fresh or frozen (wild meat)
	04.07	0407.0030	Other fresh eggs (turtle eggs)
		0407.0090	Other bird eggs in the shell fresh or preserved or cooked (eggs of a macaw)
	04.10	0410.0000	Edible products of animal origin
	05.02	0502.0000	Hair of wild boar, hair of other animals for brushes; residues of hair.
	05.04	0504.0090	Other, intestines of animals other than that of fish whole or cut in parts fresh cooled or frozen, salted, pickled, dried or smoked.
	05.05	0505.0000	Bird skin and other parts of birds with feathers or down, feathers or part of feathers (also when trimmed) and down , raw, cleaned, disinfected or treated in any way to prevent desiccation but not further processed; powder and offal of feathers or from parts of feather
	05.07	0507.0000	Turtle-shield, antlers, hoofs, nails, claws, and bills (beak), raw or with a simple preliminary treatment but not cut in form; powder and residues of these products
	05.10	0510.0000	Glands and other products of animal origin; dead animals, not suited for human consumption for example stuffed animals
3. Mucilage's, gums, resins and thickeners	13.01	1301.0010	Natural gums and resins (*Manilkara bidentata, Hevea brasiliensis)*
		1301.0090	Other gums (shellac) and resins (balms) of natural origin
	13.02	1302.1010	Extracts of *Aloe vera*
		1302.1090	Other plant juices and plant extracts (juice of *Montrichardia arborescens)*
		1302.2000	Pectin
		1302.3000	Mucilage, thickeners from plants also when changed

Category	Post	HS Code	Description
4. Chemical industry	12.11	1211.0010	Tonkabeans mostly used in perfumery industry, medicine or for insect or parasite control or for similar uses, fresh, dried also when cut, broken or in powder form.
		1211.0040	Bark of *Quassia* and *Quassia* wood mainly used in perfumery industry, medicine or for insect or parasite control or for similar uses, fresh, dried also when cut, broken or in powder form.
		1211.0090	Other plants, part of plants, seeds and fruits of species mainly used in perfumery industry, medicine or for insect or parasite control or for similar uses, fresh, dried also when cut, broken or in powder form *(Bixa orellana, Bixaceae)*
	15.13	1513.2100	Raw palmpit oil and the fractions also when refined but not chemically changed (Oil palm oil *(Elaeis guineensis, Arecaceae)*
	15.21	1521.1000	Plant wax also when refined or colored
		1521.9000	Other waxes also when refined or colored
	29.39	2939.0010	Quinine and all other alkaloids and derivatives salts of these products from the bark of *Cinchona* with exception of Quinine mixed with other medicines
5. Flower bouquets and flower arrangements	06.03	0603.1060	Heliconia (*Heliconia spp.*), fresh
		0603.1070	Orchids (*Orchidaceae*), fresh
		0603.1090	Other for example Sangrafoe *(Costus arabicus, Zingiberaceae)*
	06.04	0604.000	Foliage, leafs, twines, branches and other parts of plants without flowers, blossoms or flower buds also grasses, mosses, lichens, for flower arrangements or for decorations fresh, dried, bleached, painted, impregnated or prepared in any way (*Apeiba spp., Tiliaceae*)
6. Plaiting and Brushes	14.01	1401.0000	Plant products mainly used in plaiting and basket making (bamboo, rattans also straw of grain crops cleaned, bleached or painted (*Typha angustifolia, Typhaceae*)
	14.03	1403.0000	Plant products of the kind mainly used to make brooms and brushes also when in rolls or in bundles
7. Textiles	14.02	1402.0000	Plant products of the kind used as stuffing also when in membranes, also when attached on one or two under layers or between two layers of another product for example kapok from the kankantri *(Ceiba pentandra, Bombaceae)*

Category	Post	HS Code	Description
Forest fruits and other products for consumption	08.12	0812.0090	Other fruits temporarily preserved, for instance by adding sulfur dioxide, or in water to which, in case or temporary preservation, salt, sulfur or other additives are added but not so that the fruit is readily fit for consumption
	08.13	0813.0000	Fruits, dried; mix of fruits nuts or dried fruits
	09.02	0902.0000	Tea also when aromatized
	12.07	1207.9090	Other oilseeds and forest fruits also when broken (awarra , *Astrocaryum vulgare , Arecaceae)*
	12.08	1208.9030	Flour of palm nuts or palm pits
		1208.9090	Flour of other oilseeds and fruits
	20.03	2003.0010	Mushrooms and truffles prepared or preserved other than in vinegar or acetic acid
	20.08	2008.0020	Other nuts or mixes including those prepared or preserved with the addition of sugar or other sweeteners or alcohol
	20.08	2008.0090	Other fruits and edible parts of plants prepared or preserved also with addition of sugar other sweeteners or alcohol (Masoesa, *Renealmia alpinea, Zingiberaceae)*
	21.01	2101.2000	Extracts, essences and concentrates of tea or maté prepared on the basis of tea or maté
	23.06	2306.6000	Waste of processed plant oils of palmnuts or palmpits also when mealed or in pellets

Sources: Ostendorf (1962); Chatten & Karg (2001)

2.5.2 Export data

Based on the export value and volume data provided by ABS, some important NWFP have been identified which were exported between 1996 and 2000. Other data recorded include product code and description, exported value and importing country.

Table 3 lists major NWFP exported between 1996 and June 2000. The codes and description are derived from the ASYCUDA system.

The most important exported NWFP in terms of the exported value are Macaws and Parrots.

Table 3. Exports of NWFP between 1996 and June 2000

NWFP Category		Period	ASYCUDA/HS Code	Description	Volume	Total value	Total value/yr
Code	Description				kg	US$	US$
Plant-based NWFP							
3	Mucilage's and thickeners	1999	13021090	Plant juices, plant extracts, pectin and pectates: agar-agar and other from plants derived products, mucilage and thickeners	1 161	3 590	3 590
5	Flower-bouquets and orna-mentals	1996-2000	06040000	Foliage, leaves, twines and other plant parts without flowers, blossoms or flower buds and also grasses, mosses and lichens for bouquets or for ornamentals, fresh, dried, bleached, painted or impregnated in some way	523 547	280 974	62 438
8	Fruits (derived from forests)	1996-2000	-	Awaras and Maripas	24 118	5 215	1 738
4	Chemicals	1996-1997	12110090	Plants, plant parts, seeds, fruits of the kind usually used in the perfumery or pharmacy industry or for insecticide, fungicidal or similar purposes, fresh, dried also when cut broken or in powder form.	257	873	436
6	Plaiting & brushes	1996-1997	14010000	Plant materials of the kind mainly used for plaiting and baskets (i.e. bamboo, rattans also straw of grain crops cleaned, bleached or painted)	9 311	5 166	2 583
Animal-based NWFP							
1	Living animals	1996-1999	01060060	Apes	4 999	886 692	221 673
		1996-2000	01060070	Macaws and Parrots	4 281	3 000 925	666 872
		1996-2000	01060030	Turtles	13 957	112 717	25 048
		1996-2000	01060080	Birds	44 937	787 821	177, 293
		1996-2000	01060090	Other living animals	86 290	2 110 999	469 110

Source: Chatten & Karg (2001)

2.5.3 Local trade and consumption

No statistics on local trade or consumption could be found, although various studies describe how indigenous maroon and native communities depend on forests for their subsistence and what kind of forest products are used (Ostendorf, 1962; Verwey, 2000); FAO, 1999a). These communities use NWFP as a source of food, fuel, fiber, medicine, oils and construction materials. See Table 4 for a list of examples of NWFP used by indigenous people and maroon communities.

Table 4: Examples of NWFP used by the indigenous people or maroon communities

NWFP Category	Product common name	Description
8	Watracacao	Oil (*Bombax aquaticum, Bombaceae*)
	Krapa	Non edible oil (*Carapa spp, Meliaceae*)
	Awara	Oil (*Astrocaryum segregatum, Arecaceae*)
	Awara	Fruit (*Astrocaryum segregatum*)
	Toekoemaw	Oil (*Astrocaryum tucuma*)
	Boegroe maka	Oil (*Astrocaryum sciophilum*)
	Paramaca	Oil (*Astrocaryum paramaca*)
	Maripa	Oil (*Maximiliana maripa*)
	Maripa	Fresh fruit (*Maximiliana maripa*)
	Koemboe	Oil (*Oenocarpus bacaba*)
	Hoogland boesipaja	Tea surrogate (*Cecropia spp., Cecropiaceae_*)
	Granjaba	Tea surrogate (*Caperonia palustris, Euphorbiaceae*)
	Loewisa wiwiri	Tea surrogate (*Eclipta alba, Compositae*)
	Jorka pesi	Coffee surrogate (*Cassia occidentalis, Caesalpiniaceae*)
	Patawa koemboe	Koemboe drink (*Jessenia bataua, Palmae*)
	Koemboe	Koemboe drink (*Oenocarpus bacaba, Palmae*)
	Pina	Koemboe drink (*Euterpe oleracea, Palmae*)
7	Kankantri	Stuffing for pillows (*Ceiba pentandra, Bombaceae*)
	Boskatoen	Stuffing material (*Bombax sp.*)
	Lisdodde	Stuffing material (*Typha angustifolia, Typhaceae*)
6	Pandan	Rope (*Pandanus tectorius*)
	Kamina tite	Rope (*Heteropsis jenmanii, Araceae*)
	Awara	Plaiting material (*Astrocaryum spp, Arecaceae*)
	Warimbo	Plaiting material (*Ischnosiphon spp. , Marantaceae*)
5	Segawe	Beads (*Adenanthera pavonina, Mimosaceae*)
	Kokriki	Beads (*Ormosia spp. , Papilionaceae*)
	Orchids	Flower
	Heliconia	Flower
4	Pegrekoe	Medicine (*Xylopia spp., Annonaceae*)
	Laksiri	Balm (*Caraipa densifolia, Guttiferae*)
	Kwasi – bita	Medicine (*Quassia amara*)
	Loango tite	Medicine (*Aristolochia macrota*)
3	Mataki	Glue (*Symphonia globulifera, Guttiferae*)
2	Wild meat, Haas or He	*Agouti paca*
1	Macaws. Ara	*Ara chlopterus*
	Songbirds, Roti	*Sporophula minuta*
	Apes, monki monki	*Saimiri sciureus sciureus*
	Snakes, Dagwe	Boa constrictor
	Frogs, Papitodo	Pipa Pipa
	Turtles, kikkerkopschildpad	Phrynops nasuta

Source: Ostendorf (1962); Verwey (2000); FAO (1999a)

Local trade in NWFP can be observed at different markets in Paramaribo and other districts. NWFP are bought and sold from people coming from the interior and cities. Organizations supporting local communities include the NGO–Forum and the National Woman Movement (NVB).

A short summary was made from different studies conducted by students from the Department of Agriculture, AdeKUS on forest products mostly sold by maroons or indigenous people in the markets in Paramaribo. Most products for medicinal use or rituals are sold as a mixture of different herbs processed or preserved according to traditions and rituals. Awareness of the value of traditional knowledge is growing and it is possible that communities might not provide information on the ingredients if proper protection of the traditional knowledge is not regulated.

Table 5: Examples of NWFP sold at markets in Paramaribo

Main Category	Common name	Product description and/or species involved
1	Parrots	Live parrots
2	Iguana eggs	Eggs
	Wild meat	Meat of deer, wild boar, He (*Agouti paca*)
3	Mataki	Glue (*Symphonia globulifera*)
	Tingi mo ii, Alakoeseri	Balm from bark (*Protium spp., Burseraceae*)
4	Tonka	Tonka beans for hair products, hair products in which tonka beans have been processed.
	Dan'wiri	Mixture of plants used as a hair product
	Krapa olie	Oil from the *Carapa* spp., *Meliaceae* used for skin treatment and to strengthen baby skin
	Nekoe	Roots from a liana (*Lonchocarpus spp., Papilionaceae*) used a poisonous drug when fishing
	Bospapaja	Leaves of *Cecropia sp. Cecropiaceae*, to strengthen baby skin
	Pegrekoe	Used as a tea after giving birth (*Xylopia spp. Annonaceae)*
5	Kalebas	Fruit used as a jar (*Crescentia cujete, Bignonaceae*)
	Kankan-oedoe fruits	Dried fruits of *Apeiba echinata, Tiliaceae*
6	Matapi	Stem of Warimbo used for a household plaiting to press juices from cassava (*Ischnosiphon gracilis, Marantaceae*)
	Lisdodde	Strips from the leaves used for plaiting (*Typha angustifolia, Typhaceae*), seeds used as a stuffing
7	Kankantrie	*Ceiba pentandra* , *Bombaceae* seeds used as stuffing for pillows
8	Koemboe	Seeds used to produce drinks (*Oenocarpus bacaba, Arecaceae)*
	Kes'kes maka	Seeds eaten as nuts (Bactris *spp.*)
	Maripa	Fruit (*Maximiliana maripa, Arecaceae)*

2.5.4 Summary

NWFP in Suriname are undervalued and their potential is not yet fully exploited.

The definition of forest by-products, as NWFP are referred to in Suriname, differs from the definition(s) used by FAO and other organizations. It is recommended that the following definition for NWFP in Suriname be used:

NWFP of Suriname consists of goods of biological origin other than wood, as well as services, derived from forests and allied land uses.

Discrepancies in NWFP categories may lead to some confusion. A clear classification and uniform description should therefore be used. The following main classes of products are proposed based on the use of the product:

- Class 1: Live animals or plants derived from the forest

- Class 2: Parts of animals or plants derived from the forest
- Class 3: Products derived from animals or plants from the forest
- Class 4: Forest related services
- Class 5: Other forest related products not directly derived from animals or plants but which are the result of natural and other biological processes in the forest

There is an institutional infrastructure for forest management, which includes NWFP. While SBB is the institute responsible for these matters, it is not actively involved in data collection or development of regulations for NWFP. It is recommended that an appropriate institutional infrastructure for statistical data collection and analysis for NWFP be developed.

No socio-economic statistical data or consumption data is available. Data on local trade could be acquired from inventories at the different markets in Paramaribo or relevant districts. This should be done on a regular basis. As the awareness of the value of traditional knowledge is growing, information on NWFP used by indigenous people or maroon communities might not be made available if proper protection of the traditional knowledge is not regulated.

3. EXISTING METHODOLOGIES ON NWFP DATA COLLECTION AND ANALYSIS IN SURINAME

3.1 Procedures for the export of NWFP

The export of NWFP from Suriname is regulated by national and international (e.g. CITES) regulations. For export of wildlife and plant products, the following permits are mandatory:

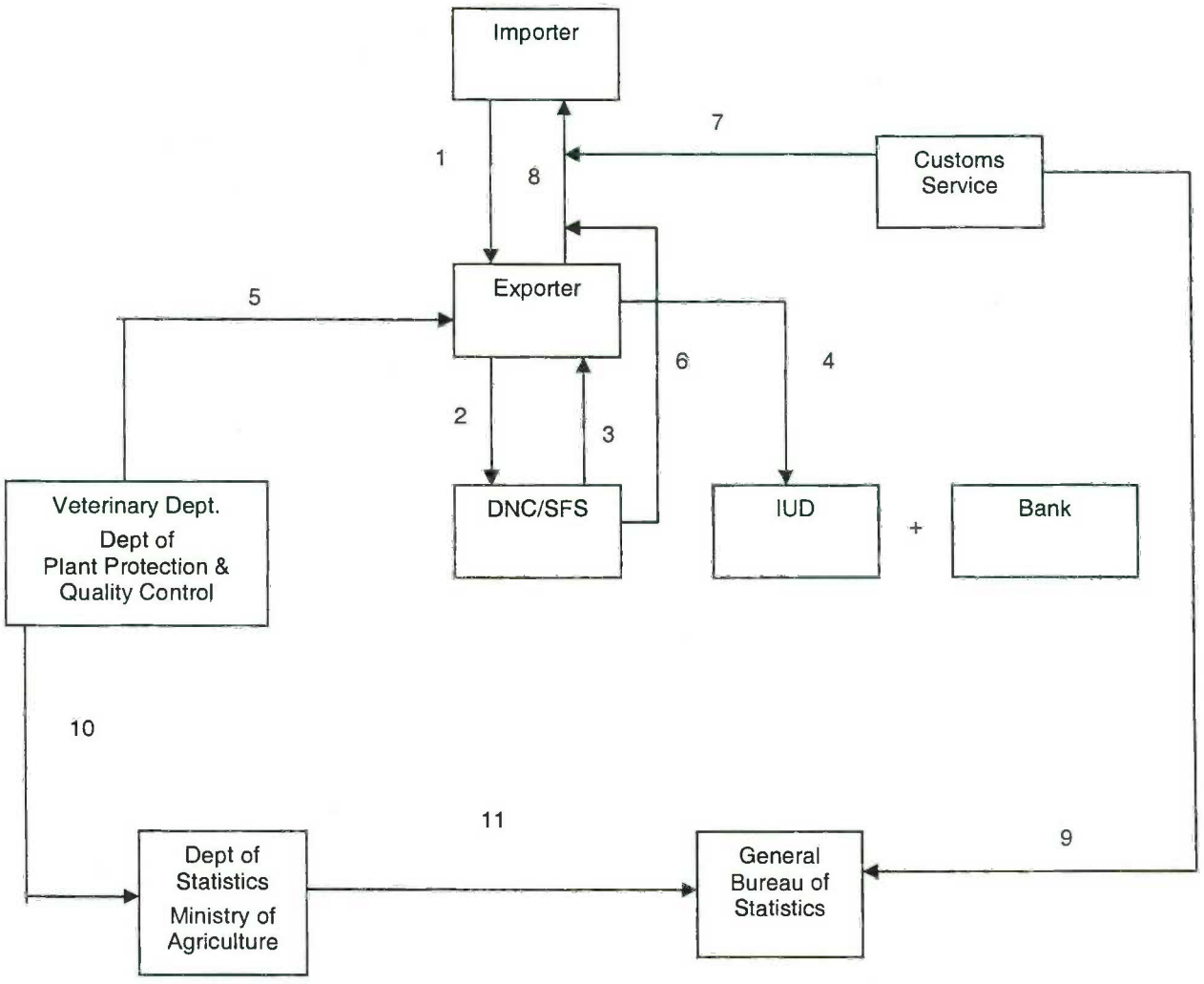
- Wildlife Application Form;
- CITES permits with security stamps;
- CITES preparation of shipment;
- Enig document for customs administration and national statistics;
- IUD license for export and foreign financial transactions;
- H-99 permit for commercial and non-commercial shipments for acquiring a license;
- IT-form for financial transactions;
- Health certificates of the Veterinary Department and/or the Department of Plant Protection and Quality Control of the Ministry of Agriculture.

Exportable animals are determined by the DNC based on the:

- CITES appendixes 1 and 2;
- negative list resolution; and
- the Hunting Act.

Figure 2 illustrates the procedures for export of NWFP using the example of trade in wildlife products.

Figure 2: Procedures for export of wildlife products



For explication of figures, see text below.

The relevant steps shown in figure 2 are explained below.

1) The importer, located in the country of import, must apply for an import permit.
2) Only when the import permit is granted, can the export permit in Suriname be requested at the DNC. The Wildlife Application Form and the H-99 form (see annex for forms and permits) accompany this permit.
3) Four working days after submission of the application, the CITES permit, the H-99 form and the Suriname Forest Service Permit can be received (after permission is granted). DNC keeps the Wildlife Application Form.
4) The Enig document and the IT-Form (for financial transactions) are filled out and submitted to IUD and the commercial banks, including the CITES permit, the H-99 form and the SFS permit.
5) A health (animals) or phyto-sanitation (plants) certificate is required for export. The Veterinary Department or the Department of Plant Protection and Quality Control issue these certificates.
6) For packing and handling of the products, a CITES preparation of shipment checklist is checked by a wildlife guard (DNC). The wildlife guards also check if the number and description of the products is in compliance with the information on the CITES-permit. The SFS permit is also checked. All shipments must comply with IATA (International Air Transport Association) regulations.

7) The customs service officer also checks packaging and documents everything on the H99-form. The products are inspected and then sealed.
8) The responsibility for the exported products is with the carrier until the product arrives at the country of import.
9) The customs service submits statistical data to the ABS.
10) + 11) The Veterinary Department and the Department of Plant Protection and Animal Control submit statistical data to the Department of Statistics of the Ministry of Agriculture, which, in turn, submits it to the General Bureau of Statistics.

3.2 Points of statistical data collection

The following current points of data collection and data entry for statistics on NWFP have been identified:

DNC acquires its data from forms for licenses and permits that exporters apply for and which are filled out by DNC together with the exporter. Both the exporter and the wildlife guards collect the required field data. Processing of the data is partly done from an automated database program developed by DNC. Records are kept concerning the quota for export, animal species exported, volume/number of specimen exported, FOB value of shipments and number of animals in captivity in stock at the exporters facilities. No data is directly submitted to ABS.

The Veterinary Department and the Department of Plant Protection and Quality Control of the Ministry of Agriculture acquire data from the forms used for licenses and permits as well from issued health certificates. The Ministry of Agriculture submits data to ABS.

All products that are exported pass through the Customs Service. These data are entered in the automated ASYCUDA database. All data from the customs service is submitted to ABS. These data are not considered suitable for conservation and monitoring purposes. The main problem with the data is that only a general product description is used. Plants and animals are mostly referred to by their use or general appearance. For example the product code 01060030 refers to turtles. For conservation and monitoring purposes a more specific description is needed up to the species level.

ABS issues statistical reports, which are based on customs data and include the following information:

- commodity code
- commodity description
- export quantity
- Gross Weight Value in US$
- importing country
- unit of measure
- total volume per country

3.3 Data collected: the example of living animals (Macawas)

The data collected for NWFP in Suriname is shown below using living animals (Macawas) as an example.

a) DNC: Macaws are CITES species. Their export is limited to a quota per year and exporter.
b) Custom Service: Macaws enter international trade and are therefore included into the ASYCUDA database using code 01060070.
c) Exporter: The exporter has to apply for permits at the Department of Nature Conservation/Suriname Forest Service:

- Wildlife Application Form;
- Suriname Forest Service Permit;
- CITES Permit.

The following data is collected on the Macaws with these permit forms:
- Common name: Ara, Macaw;
- Scientific name (Genus, species): *Ara ararauna or Ara chloropterus;*
- Description of specimen including identifying marks or numbers as well as age and sex (if live);
- Quantity exported;
- Total value in US$ F.O.B. or CIF;
- Country of origin;
- Country in which the specimens were taken from the wild, bred in captivity;
- Total exported quota;
- Number of breeding operations or date of acquisition;
- Special conditions and purpose of export;
- Information on exporter;
- Type of export;
- Consignee;
- Dates of export;
- Shipment information: dates, type, carrier, and authority that issued the permit.

After the permit is granted the exporter fills out:
- CITES preparation of shipment checklist;
- Health certificate;
- Enig document: document for the customs service on the product to be exported;
- H-99 form: to apply for exemption and for a license to export from the IUD;
- IT-form for international financial transactions.

The following additional data on the NWFP is collected with these forms:
- Number of birds exported;
- Description of the birds: species, nature of package in which birds are transported;
- Origin of the birds: name and address of the exporter, name and address of the place of origin of the birds;
- Health information of the birds;
- ASYCUDA product code;
- Volume in kg (gross/net);
- Value of the product;
- Name and address of the applicant;
- Number of the application;
- Transaction information: bank, form of payment, payment conditions, delivery conditions, place of destination, insurance, type of transport, container number;
- Value of the shipment;
- Exemption;
- Name of the importer in the country of destination.

3.4 Major constraints

Regarding statistical data collection, points of data collection and the procedure for NWFP export, the following major constraints have been identified:
Statistical data collection:

- There is no uniformity in data collection;

- The data collected is not useful for conservation or sustainable forest management purposes;
- The current objective of the collection of statistical data is to assess the value and revenues from NWFP for the government. The data collected at the moment are insufficient for the appropriate monitoring and evaluation of the management of resources providing NWFP.
- It is not yet clear what kind of information is needed, especially for conservation and sustainable forest management purposes;
- The definition of NWFP in Suriname is not clear.

Points of data collection:

- Although there are some points identified where data are collected, an official infrastructure for NWFP does not exist in Suriname. No official collaboration exists between the institutes involved in the collection of data on NWFP;
- Shortages of personnel and funds are often a problem, especially regarding control and monitoring.

Procedure for NWFP export:

- There is no clear procedure for export of NWFP other than animals in place;
- Although the customs service checks the products before they are sealed off, often the customs service officers are not familiar with the product with which they are dealing. As a result the products exported are often registered under the ASYCUDA description 'other'.

3.5 Summary

Statistical data on NWFP in Suriname is not yet organized and structured in an automated system. The DNC keeps a partially automated system of data collection and analysis regarding wildlife products. This department is the only local user of these data. As a CITES Management Authority, it supplies export quantity information to CITES headquarters.

The customs service collects data on NWFP manually based on licenses and permit forms, which are brought into the automated ASYCUDA database. These products are not specified as NWFP or forest by-products.

ABS analyzes these data depending on the requests of the user. Yearly reports are made regarding traded products, trade volume and value. Disclosure of statistical data is according to the Act on Statistics. These statistical data are not useful for scientific purposes, sustainable resource management or monitoring. They mainly show the economic value of the forest products.

The existing infrastructure is not used to its full potential. The SBB, as the responsible institute, is not yet involved in NWFP data collection or data analysis. Institutions involved with some form of management of the forest, NWFP included, do not communicate sufficiently.

3.6 What can be done to improve the availability of statistical data?

- Clear decisions have to be made on the institutional infrastructure regarding NWFP.
- Commitment of all parties is essential for the successful use of the NWFP resource.
- A complete list of required data must be worked out. An example of required data is given in chapter 3.3.
- A central database should be kept where data are available to all concerned parties.
- The currently used permit forms should be adapted in order to provide more appropriate information for the management authority. DNC is now in the process of adapting the permit forms.

4. PROPOSED METHODOLOGY FOR STATISTICAL DATA COLLECTION AND ANALYSIS

4.1 Introduction

The proposed methodology for statistical data collection and analysis was developed after an evaluation of the current situation of the NWFP sub-sector in Suriname. With the existing institutional infrastructure as a basis and using the identified constraints and the desired output from interviews with relevant and potential users or providers of statistical data a proposal for improvement of the collection of statistical data was elaborated.

The following issues should be taken into account when proposing the new methodology:

- Statistics on NWFP should provide information for different end users. They are most important for planners and those involved in making decisions regarding NWFP, i.e. scientific and management authorities dealing with NWFP, endangered plant and animal species, forest services.
- Statistics are a tool for impact assessment, especially in identifying the overexploitation of natural resources, including NWFP. They are therefore useful for management authorities such as SBB, which enforces the Forest Management Act as well as related legislation and regulations.
- Most NWFP are collected by indigenous people and maroons who use these products on a daily basis. With the current points of data collection, it will be difficult to obtain information on consumption, production and local trade. Local trade involves a relatively small market (less than 500 000 people). Data on local trade can be collected at local marketplaces in all districts and at local animal pet shops and animal exporters, especially at the markets in Paramaribo. These data should be collected on a regular basis through (market) inventories.
- Taking into account the difficulties in monitoring local consumption of and trade in NWFP, the focus of the proposed methodology should be on NWFP that will eventually enter international trade. As for the exported NWFP, data on trade volume and values are essential for the Government (e.g. Ministry of Trade and Industry and Ministry of Finance).

The proposed methodology consists of 11 steps that should lead to an improved availability of statistical data on NWFP in Suriname:

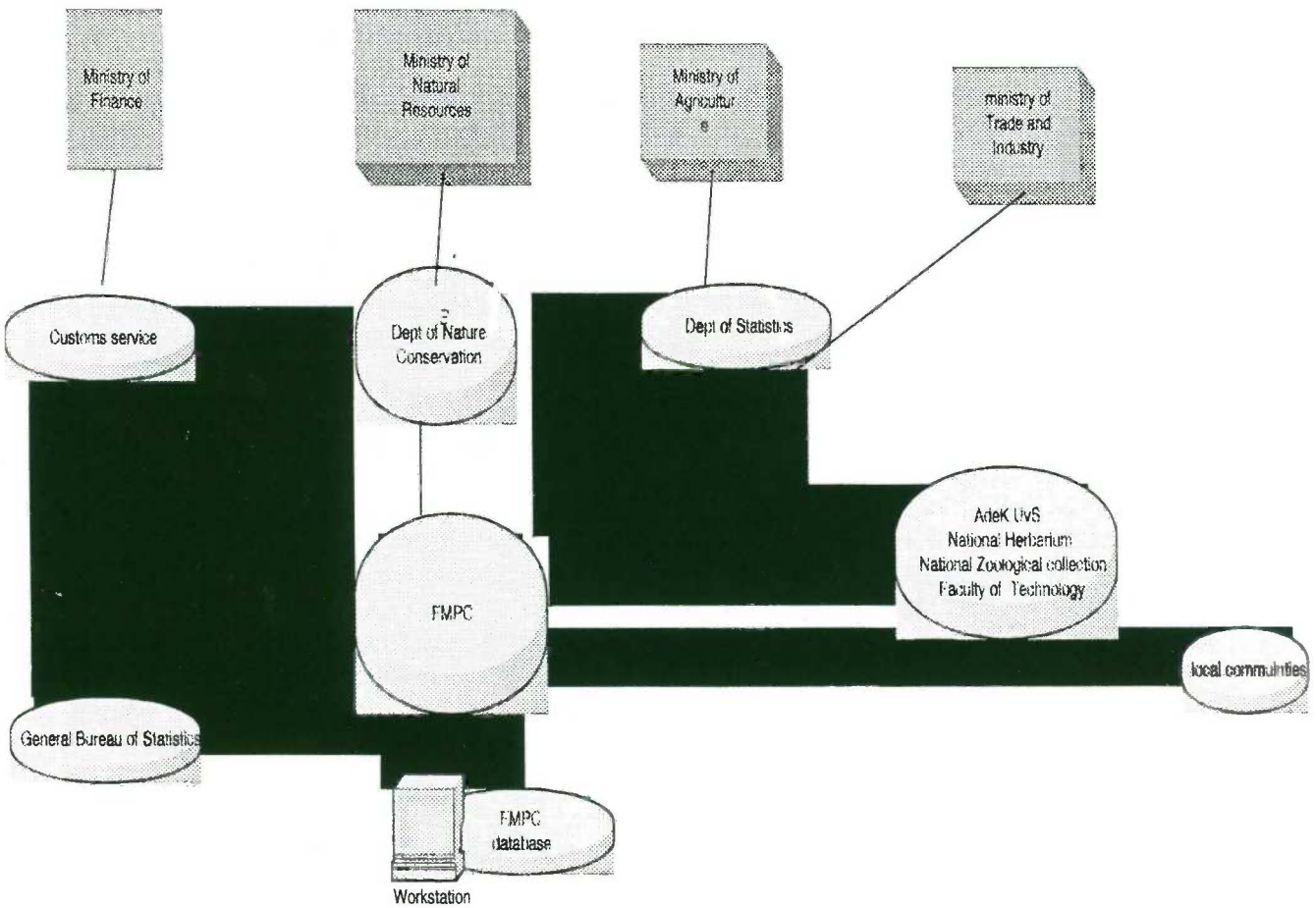
- Step 1: Agree upon the institutional infrastructure
- Step 2: Assign and agree upon clear points of data collection
- Step 3: Identify data needed
- Step 4: Design a new NWFP database
- Step 5: Establish linkages to relevant databases (i.e. ASYCUDA and LOGPRO)
- Step 6: Develop data collection forms
- Step 7: Develop identification guide
- Step 8: Convert data used for the NWFP database
- Step 9: Establish working group
- Step 10: Train stakeholders concerned
- Step 11: Develop Forest Management and Monitoring Plan

The proposed method for the improved availability of statistical data could not be fully tested due to the fact that basic decisions still have to be made. Once these basic decisions are made, the testing of the method could continue.

4.2 Institutional infrastructure

A clear decision should be made with regards to the institutional infrastructure for the collection, analysis and management of data on NWFP in Suriname. A model is given in Figure 3. The basis for this institutional infrastructure is the required flow of data on NWFP for sustainable management of NWFP in Suriname. It is proposed that all institutes involved in NWFP are involved in the 'new' institutional infrastructure.

Figure 3: Figure 3. Proposed model for the institutional infrastructure and for dataflow on NWFP in Suriname



SBB, the Forest Management Authority, has the responsibility for the collection, analysis and distribution of data on NWFP and the monitoring of commercial production of NWFP (and wooden products). SBB should therefore be the lead organization to set up the institutional infrastructure.

The design of a NWFP database is proposed which would be managed by SBB. SBB should also be responsible for data processing and reporting and the correct flow of data on NWFP in Suriname. It is proposed that the institute, which will be in charge of the scientific analysis of research, should be responsible for issuing permits for the export of NWFP under the Ministry of Natural Resources. Part of this responsibility may also be delegated to another institution.

In this new institutional infrastructure, DNC will not be solely responsible for issuing export permits for NWFP. A decision should be made as to who will be responsible for the delivery of CITES permits.

4.3 Points of Data Collection

For the collection of data on NWFP the following institutes are identified:

SBB
- Collection of field data via forest guards;
- Collection of data on product volumes, value, location of collection, dates, producers, exporters etc. from licenses and permits forms.

DNC
- Collection of field data (location, numbers, species, volumes, mortality etc.) trough wildlife personnel and from permits and licenses forms.

AdeKUS
- BBS: from field studies;
- NZCS: from research and field studies;
- Department of Agriculture, Faculty of Technology: from research and field studies;
- Department of Environmental Sciences: from research and field studies;
- CELOS: from research and field studies.

Ministry of Agriculture
- Veterinary Department: from health certificates;
- Department of Plant Protection and Quality Control: from health certificates.

Indigenous people and maroon communities
- via community scouts under the responsibility of the SBB (for example assigned forest guards for their community)

The following procedure for the export of NWFP is proposed:

1. The exporter, collector or producer registers at SBB.
2. The exporter, collector or producer applies for a permit at SBB to collect (produce) a NWFP or parts of a NWFP. Form to be filled out: Application form for collection (new)
3. The exporter applies for a license to export NWFP at SBB. Forms to be filled out by the exporter:
   - Enig document form for customs service;
   - CITES permit form; or
   - Wildlife application form (for CITES species).
4. SBB registers requests for permits for collection of NWFP.
5. SBB registers the request for a license to export NWFP.
6. From this point on the institute that does the analysis of the data on NWFP further handles the applications regarding NWFP and issues the permits and licenses. SBB is in fact responsible but could delegate this responsibility.
7. DNC co-signs permits and licenses with regards to CITES species, using the information from SBB.
8. SBB grants permits and/or licenses.
9. The H-99 form (for financial transactions) is filled out and submitted to IUD and the commercial banks with the CITES permit and the Enig Document form.

10. A health certificate or a phyto-sanitation certificate is required for export. The Veterinary Department or the Department of Plant Protection and Quality Control issue these permits.
11. The exporter submits the products to customs service.
12. For packing and handling of the live animal products, a CITES preparation of shipment checklist is checked by wildlife guards. The wildlife guards also check if the number and description of the products is in compliance with the information on the CITES-permit. They also check the SFS permit. All shipments must comply with IATA (International Air Transport Association) regulations.
13. The customs service officer checks packaging and documents everything on the H99-form. The products are inspected and then sealed.
14. The responsibility for the exported products is with the carrier until the product arrives at the country of import.
15. The customs service submits statistical data to ABS.
16. + 17. The Veterinary Department and the Department of Plant Protection and Animal Control submit statistical data to the Department of Statistics of the Ministry of Agriculture, which, in turn, submits it to ABS.

4.4 Data Required

Based on the checklist for CITES; a general list of required data on plant and animal NWFP should be elaborated in order to assist scientific authorities in making non-detrimental findings for CITES. These data are required by scientific and management authorities in order to monitor the sustainable management of the resource. For financial analyses, data on trade volume, production, and local trade should be collected.

The desired database output that would support management activities for the scientific and management authorities are listed below.

Data for the management of the quota system

- Yearly quota and FOB values per species;
- Allocation of yearly quota to the exporters;
- Consolidated quota per exporter;
- Total requested quota and remaining free quota;
- Total realized exports and potentially planned exports on the basis of allocated quota and FOB values of total realized exports per animal species;
- Overview of permit numbers and CITES security stamp numbers, country of destination, with or without name and address of buyer (importer);
- Stock of animals in captivity;
- Yearly report per exporter;
- Total requested and realized quota per species;
- Percentage realized relative to the individual quota;
- Total realized FOB values;
- Exported number per species per country of destination.

For conservation purposes and the sustainable use of forest resources

- Location of production/collection (extraction);
- Type of production;
- Volumes lost;
- Volumes traded: weight/numbers;
- Value of traded or lost volume;
- Population
  - ➢ Size of the population at the location;
  - ➢ Distribution/range at the location;

- Age of animals exported/collected;
- Sex of animals exported/collected;
- Structure: number of males/females exported/year/season/location, number of siblings/year/location.

- Production and trade
  - Local trade patterns;
  - International trade patterns;
  - Local production and consumption: value and volume;
  - Harvest type.

Data on NWFP should be kept for management of the main NWFP categories

- Class 1: Live animals or plants derived from the forest;
- Class 2: Parts of animals or plants derived from the forest.

Examples for animal and plant products are shown below in order to give an idea of the data that is needed for the management and monitoring of NWFP.

Example 1: Macaws

Production/collection data

National harvest level: Location, where birds were captured (coordinates of the place of collection or production sectors based on logpro database):

- Forest type;
- Vegetation type;
- Habitat;
- Demographic structure, village;
- Concession identification number.

Data to be collected during inventory/studies in the forest on a regular basis

- Population size: Estimated/counted total number of macaws (subspecies included);
- Population distribution: Counted number of macaws at location (see location);
- Population structure: Sex structure/reproductive age classes:
  - Number of females: mature or immature (juveniles/sub adults, youngsters/neonates);
  - Number of males: mature / immature.
- Population trends:
  - Mating season;
  - Breeding season;
  - Number of animals captured at specific location;
  - Number of animals exported per exporter;
  - Number of fatalities during collection;
  - Number of fatalities during captivity for export.

Data to be collected from the permit and license forms filled out by the collector, producer or exporter

- Harvest method: Legal (registered) or illegal (not registered)
  - Selective or non-selective harvest (code), number of birds captured;
  - Shooting, number of fatalities;
  - Captive breeding, number of bred animals;
  - Mortality (natural during harvest and during transport).
- Harvest type: Live capture or trapping
  - Nets;
  - Cages;
  - Shooting; not killed;
  - Eggs collecting;
  - Parts collected without killing the life form;
  - Captured but dead (shooting or poisoning).
- Number of NWFP collected: Total number of macaws collected;
- Type of NWFP traded: Total number of macaws exported;
- Number of products discarded: Total number of fatalities and total number of rejected birds for export (sick animals etc);
- Trade patterns;
- Season;
- Number of animals traded.

- Pests and diseases
  - Species;
  - Number of specimens;
  - Recorded pests in situ/at export;
  - Recorded disease in situ/at export;
  - Health certificate identification number.

Possible question on the wildlife application form

a) Production:
- Concession id number;
- Coordinates of the location (sector or concession) of collection/production of NWFP.

b) Harvest method used to acquire the NWFP at a specific location:
- Selective harvest of live animals;
- Total harvest of live animals;
- Selective harvest of dead animals;
- Total harvest of dead animals;
- Natural mortality.

c) Type of harvest used:
- Nets;
- Caging;
- Arms;
- Collecting (for example eggs).

d) Number of NWFP collected/exported:
- Number of animals collected using the harvest method described above;
- Number of animals to be exported;
- Animals bought from another collector? If yes, please state name and address of the seller (reseller);
- Date the animals were captured (day/month/year);
- Number of animals bought;
- Exporter id.

(Note: No permit will be issued when this form is not filled out adequately)

Example 2: Plant product

Harvest method plants
- Number of plants collected;
- Legal/illegal collected:
  - Selected harvest;
  - Unselected harvest (total harvest).

Harvest type
- Removal of whole plants;
- Removal of living plant parts (lethal or non-lethal for remaining plant):
  - Bulbs;
  - Roots;
  - Shoots;
  - Buds;
  - Flowers/or parts of flowers involved with reproduction (anthers, pollen, ovule);

- Leaves;
- Plant juices (excretions);
- Seeds and embryos;
- Wood (fuel);
- Bark;
- Fruits;
- Scions;
- Artificial propagation (in vivo, in vitro).

Trade

- Local trade:
  - Volume;
  - Value.
- Export:
  - Destination;
  - Volume;
  - Value.

Consumption

- Volume/value (data from studies at markets in the districts and Paramaribo);
- Type of consumption.

4.5 Design of new database

A NWFP database should be designed and managed by SBB. SBB should also be responsible for data processing, yearly reporting and correct dataflow for NWFP in Suriname.

In this proposed database, the existing population analysis and development database currently used by DNC could be incorporated. In fact, the new database could be considered an extension of the existing database. Based on the importance of NWFP in the national economy, a decision should be made on investments required for the establishment of the proposed database.

In deciding what to include in a database on NWFP, the main issues to be considered are:

- What is the purpose of the information generated by this database?
- Who are the end users of the database?

The main purpose of the information generated by the proposed database is to promote the sustainable management of resources providing NWFP. The end users of the database are involved in:

- natural resource conservation;
- natural resource management;
- natural resource use planning (e.g. Ministry of Natural Resources);
- policy planning (Ministry of Natural Resources) and development (Ministry of Development Planning).

4.6 Linking existing databases

It is proposed that a link be established between the proposed NWFP database and the existing ASYCUDA and LOGPRO databases.

Initially, only a relationship of product similarity and corresponding codes will be established to the ASYCUDA system. This will facilitate communication between ASYCUDA and the proposed database on NWFP. Information should be exchanged on a regular basis. A periodical update of the database on NWFP to the ASYCUDA system should be carried out in order to verify if new product descriptions or codes were introduced. Depending on future developments, a direct (on-line) link could be considered.

A connection should also be established with the LOGPRO database. This database has been developed by SBB in order to monitor logging related activities and information. Control on logging by SBB is done through production planning and registered logging. A 100 percent inventory system is now being developed. Although licenses for wood logging are separately issued from licenses for the collection of forest by-products, both can take place in almost the same location. LOGPRO covers data on the concession holder (name, address and type of license) and on the concession itself (i.e. id no., location, logging plots, logged trees, tree dimensions and tree species). These data can be extracted from the mandatory inventory for a logging concession.

4.7 Data collection forms

It is suggested that the format of licenses and permits for export of plants and animals and their products is reviewed in such a way that relevant items needed for management and monitoring purposes are added. Examples are given in step 3 (chapter 4.4).

Forms for data collection in the field must be developed to ensure coverage of relevant data by SBB. These forms should be kept as short as possible as there is little time or opportunity in the field for data collection.

4.8 Identification guide

For the purpose of standardization, an identification guide on NWFP exported from Suriname should be developed. This catalogue should be developed for field data collectors and customs services. This guide, which would be the result of a comprehensive study, should include information on:

- related ASYCUDA code;
- category;
- product description (by use and/or type of product);
- physical description (picture, photo or drawing to ease identification of the product, or identifiable parts, ingredients of the product);
- common name;
- scientific name;

- origin of the product;
- collection or production method;
- notes on packaging and handling requirements;
- CITES animals and plants.

4.9 Data conversion

Eventually a data conversion must take place from the DNC database to the NWFP database, in particular for the purpose of monitoring and sustainable management of NWFP resources.

The following data is kept by the DNC from issued license and CITES permits:

- genus / species;
- CITES appendix number;
- yearly quota;
- quota per exporter;
- used quota per year and exporter;
- number of animals in stock at exporter facility.

No data are being gathered on the locatio ı and the number of collected animals or animals bred in captivity. Rather than existing on its own, in the future the data from the DNC could be included in the new SBB database.

4.10 Working group

It is proposed to create a working group, chaired by SBB, which will be responsible for the development of the identification guide and the establishment and coordination of the NWFP database.

4.11 Training

It is proposed that SBB be responsible for the implementation of the above steps and related monitoring and training activities. Training should concern personnel and local communities who are dealing with data collection, data entry, data analysis and reporting of statistical data as well as with the execution and monitoring of forest management programs.

4.12 Forest Management and Monitoring Plan

An integrated Forest Management and Monitoring Plan should be developed under the responsibility of SBB.

5. CONCLUSIONS

The current method of statistical data collection and analysis related to NWFP in Suriname is inefficient due to the fact that:

- the NWFP sub-sector is not organized;
- the institutional infrastructure needed for proper management of resources providing NWFP is lacking;
- the responsible authority for NWFP is not yet involved in the topic;
- the collected data are insufficient for the sustainable management of the resource;
- a comprehensive inventory of the existing forest by-products or NWFP is not available;
- basic decisions have yet to be made by the responsible authority on issues such as the definition of NWFP;
- trained personnel and sufficient funds are lacking, which has lead to a static situation of the NWFP sub-sector;
- although aware of the possible potential of this sub-sector, no assessment of its potential can be made due to the lack of data.

6. RECOMMENDATIONS

It is recommended that the proposed methodology be implemented in four phases.

Phase 1

Phase 1 would include the following activities:

- Review of the proposed definition for NWFP/NTFP so that a clear decision on the definition used in Suriname can be made. SBB suggested changing the term NWFP to NTFP in order to include woody products from forest. Another consideration was to include forest services such as water to forest products. If both proposals are taken into account, the definition would change to the following:

> Non Timber Forest Products consist of goods of biological origin and services that are the result of biological processes, chemical processes and/or mechanical processes that take place in the forest and are derived from forests and allied land uses.

- Review of the suggestions regarding the institutional infrastructure.
- Make decisions and get a commitment from all stakeholders on the following basic issues:
  - A clear and internationally accepted classification of exported NWFP.
  - A comprehensive inventory of relevant NWFP.
  - A central database should be maintained and appropriate information should be made available through a clear institutional infrastructure and collaboration.

Phase 1 would involve a period of intensive discussions and decision-making processes. It is proposed that this phase will end with the elaboration of terms of references or the proposed working group on NWFP.

Phase 2

Phase 2 would include the:

- Installation of a working group responsible for the coordination of the organization and development of the NWFP sub-sector;
- Elaboration of a list of relevant NWFP in Suriname;
- Development of procedures for improved data collection related to NWFP;
- Development of a Forest Management Plan, which includes NWFP.

Phase 3

During phase 3, the following activities would be carried out:

- Development of NWFP database for SBB, with proposed links to other relevant databases. A database design should be made in consultation with key stakeholders such as the Department of Nature Conservation (CITES Management Authority), AdeK University of Suriname (CITES Scientific Authority), Customs Service, indigenous maroon and native communities, exporters, forest guards, wildlife guards other stakeholders as Conservation International Suriname, WWF, Ministry of Justice: the department of industrial and intellectual property rights, NGOs and NVB.
  Sessions of consultations with the committed stakeholders for the development and use of the the proposed NWFP database should be held within an estimated timeframe. Programming of the automated database should only be carried out when the proposed method is in place. Conversion of data from the Department of Nature Conservation to the new database should be considered in future.
- Analysis of the hardware requirements has to be made to assess the financial implications for analysis, programming and hardware.
- Standardization and implementation of procedures;

- Development of forms;
- Improvement of the availability of statistical data on NWFP;
- Analysis of statistical data.

Phase 4
Phase 4 would be carried out simultaneously with phase 3. It includes the:
- Development of an automated database for SBB;
- Analysis of data;
- Improvement of availability of statistical data on NWFP.

Each phase includes training of personnel and ends with an intensive evaluation.

To implement the proposed methodology for the improvement of statistical data collection on NWFP in Suriname some ground rules should be set:
1. All stakeholders related to NWFP should commit to this project;
2. SBB is the center of the forest management process and should act accordingly in close consultation with all stakeholders involved in this process. A broad basis for this project has to be created.

Sustainable use of NWFP in Suriname is only possible if there is a sincere commitment on the part of all stakeholders. The government plays a key role and has the responsibility to set the groundwork for successful sustainable use.

The government could stimulate and support the sustainable production, consumption and trade of NWFP in Suriname by:
- Encouraging the production of NWFP;
- Taking actions to identify relevant NWFP, to recognize products as NWFP and to take measurements to handle these products accordingly;
- Providing appropriate information on NWFP;
- Providing clear regulations on the production or collection of NWFP, i.e. sustainable production methods and timetables for collection should be developed;
- Organizing the production of NWFP;
- Supporting enterprises dealing with NWFP to enter international markets taking into account national and international trade regulations;
- Providing technical support to NWFP related enterprises;
- Taking protective measures for indigenous communities such as:
  - protection of community development: the way these communities live within- and with the forest. Disturbance is unavoidable but must be kept to a minimum;
  - protection of the traditional knowledge and intellectual property rights;
  - protection of the shifting cultivation system as a traditional way of living while encouraging the development of more productive agricultural systems;
  - protection against biopiracy: i.e. Set regulations for biodiversity research and (ethno-) botanic research.
- Developing an integrated, sustainable Forest Management Plan, to be developed under the responsibility of SBB.

Although the focus of this study was on the NWFP that already enter international trade, it is stressed that Suriname also include the NWFP that have the potential to enter the international trade circuit in the future.

The problem of poaching and smuggling should be addressed by SBB. Local indigenous people and maroon communities have to be made aware of the negative effects of poaching and smuggling on their livelihood and education and support for the prevention of poaching

and smuggling in their surroundings should be provided. These issues should be included in the proposed Forest Management Plan.

While financial means have been identified as one the major constraints to this project, it is the only constraint that could be easily eliminated by seeking international funding. Although the implementation of the proposed methodology may seem expensive, the spin-off effects will prove the project worth the initial expenditures.

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8. ANNEXES

8.1 IT Form

1. IT – form

DEVIEZENCOMMISSIE

INTERNATIONAAL HANDELSTRANSACTIE FORMULIER VOOR GOEDEREN EN DIENSTEN / ONZICHTBAAR VERKEER volgens A.B. nr. 207

1. Naam importeur / exporteur / aanvrager *)	2. Leverancier / afnemer / begunstigde *)	DEVIEZENBANK NO. Bankcode regio: Jaar:
		5. Betalingsconditie - Creditbrief (L/C) Bij ontvangst der goederen Bij documenten (D/P) Vooruitbetaling Andere
3. Soort transactie Goederen / onzichtbaar verkeer *)	4. Bedrag Soort valuta FOB: Vracht: Assurantie: Andere: Totaal:	6. Omschrijving van de transactie 7. Ondertekening Plaats en datum Naam en handtekening aanvrager

HIERONDER NIET INVULLEN

8. Aantekening van de Douane	9. Aantekening van de Deviezenbank
AFC / Registratie nr / Eindig verificatie nr Andere Status Ingevoerd: ☐ Conform / niet conform *) Uitgevoerd: ☐ a) Aard der gegeven in vreemde valuta b) Aan te maken bedrag in vreemde valuta Datum en stempel Naam handtekening ambtenaar en stempel	Bedrag / Transactie nr Ter laste / gunste van rekening van de aanvrager / Verkoopkoers d.d. Ja / nee *) Stempel en handtekening 10. Aantekening van de Centrale Bank van Suriname Stempel en handtekening 11. Controle Centrale Bank van Suriname Geboekt d.d. / Paraaf

12. Additionele aantekeningen

*) Aankruisen hetgeen van toepassing is

De aangever is verplicht wijzigingen in / ontrekkingen van dit formulier via de bank van registratie te laten doorvoeren

8.2 H-99 Form

Model H-99

Republiek Suriname

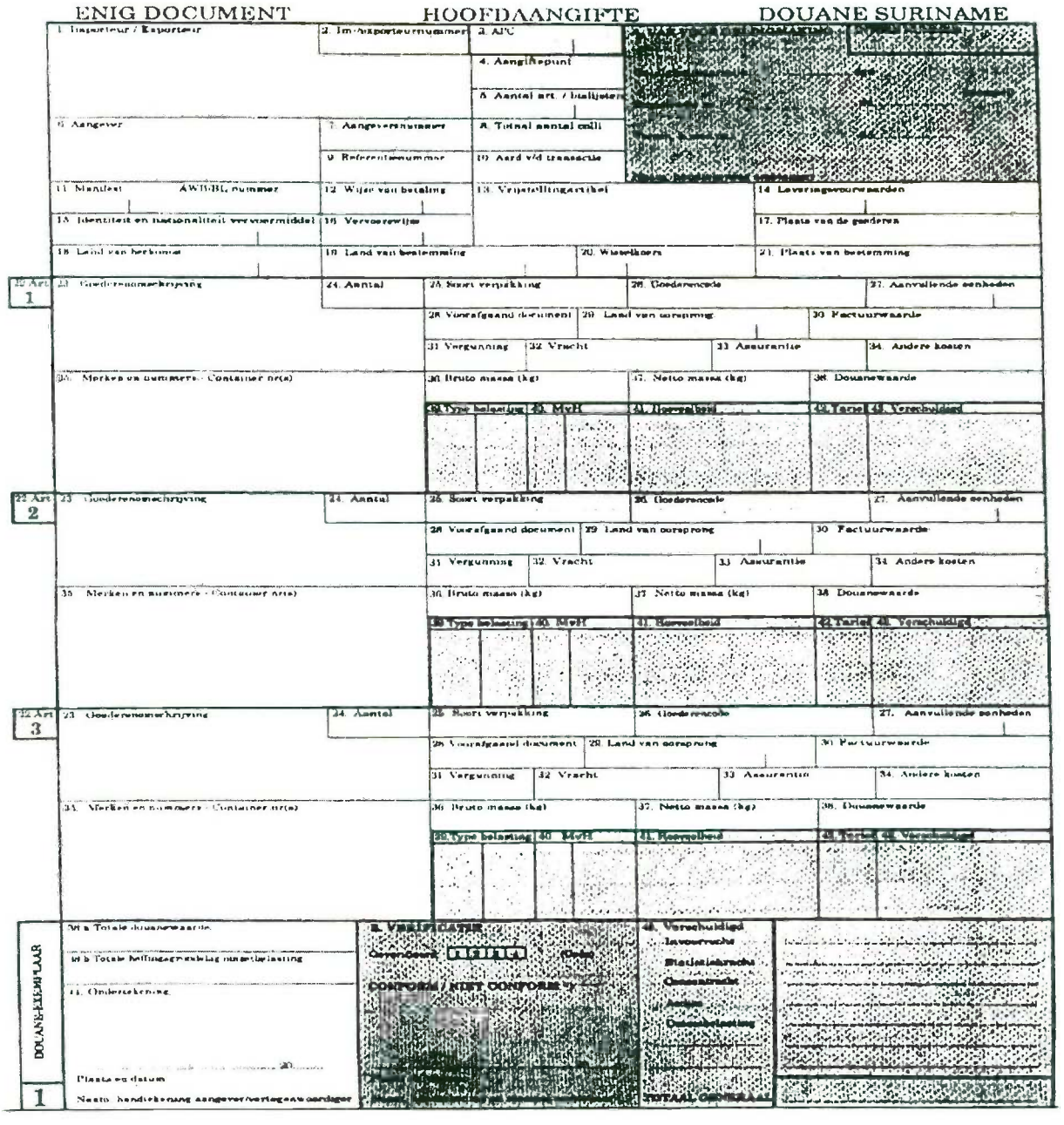
Aanvraagformulier ter verkrijging van een ontheffing c.q. Vergunning als bedoeld in artikel 2 en 3 van het Besluit Negatieve Lijst (S.B. 1999 no. 34), Dienst der Invoer-, Uitvoer- en Deviezencontrole

B.V.P. MET MACHINESCHRIFT IN TE VULLEN

Aard van de vergunning	Import ☐		Export ☐			
Naam importeur / exporteur			Naam leverancier / afnemer			
Nummer:			Naam:			
Adres:			Adres:			
Tel.:	Fax:		Tel.:			
e-mail adres			e-mail adres			
Luchtvracht / zeevracht						
Deviezenbank in Suriname:						
Betalingsvormen: documentaire kredieten ☐ documentaire incasso ☐ na ontvangst der goederen ☐ vooruitbetaling ☐			Additionele aantekeningen Dienst IUD			
			Leveringscondities CIF / C&F / C&I in vreemde valuta			
Volledige omschrijving der goederen	Goederencode		FOB	Assurantie	Vracht	Totaal
Land van oorsprong:			Land van bestemming:			
Land van verscheping:						
ONTHEFFING IMPORT / EXPORTVERBOD De Minister van Handel en Industrie beslist, in overleg met de President van de Republiek Suriname tot inwilliging / afwijsing van het verzoek tot ontheffing van het import / exportverbod.			Paramaribo, De importeur / exporteur,			
De importeur verzoekt vergunning tot bestelling en invoer / uitvoer van bovenvermelde goederen. De importeur / exporteur verzoekt ontheffing van het import / exportverbod.						
IMPORT / EXPORTVERGUNNING Vergunningnr. De direkteur van Handel en Industrie beslist tot inwilliging van bovenstaand verzoek, onder de uitdrukkelijke voorwaarde dat inklaring en betaling op eigen naam dienen te geschieden. De vergunning is voor DRIE MAANDEN GELDIG. Nadere voorwaarden:			Datum van indiening : Datum van afgifte : Paramaribo, Namens de direkteur voornoemd, Het Hoofd van de Dienst der Invoer-, Uitvoer- en Deviezencontrole			

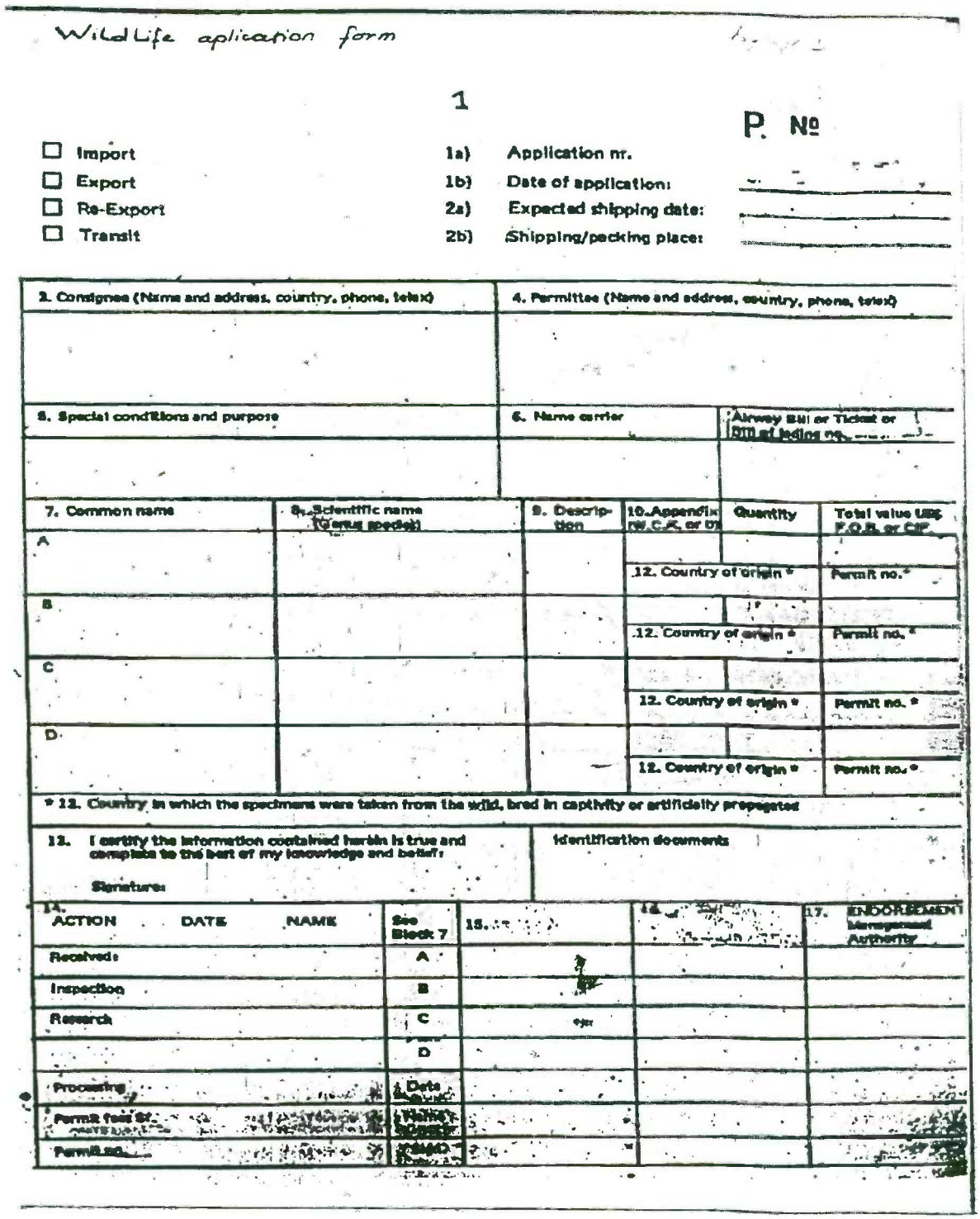
8.3 Enig Document

3. Enig document for the Customs Service



8.4 Wildlife Application Form

4. Wildlife application form



Wild Life aplication form

1

P. Nº

☐ Import
☐ Export
☐ Re-Export
☐ Transit

1a) Application nr.
1b) Date of application:
2a) Expected shipping date:
2b) Shipping/packing place:

3. Consignee (Name and address, country, phone, telex)	4. Permittee (Name and address, country, phone, telex)

5. Special conditions and purpose	6. Name carrier	Airway Bill or Ticket or Bill of lading no.

	7. Common name	8. Scientific name (Genus species)	9. Description	10. Appendix (I, II, or III)	Quantity	Total value US$ F.O.B. or CIF
A						
				12. Country of origin *		Permit no.*
B						
				12. Country of origin *		Permit no.*
C						
				12. Country of origin *		Permit no. *
D						
				12. Country of origin *		Permit no.*

* 12. Country in which the specimens were taken from the wild, bred in captivity or artificially propagated

13. I certify the information contained herein is true and complete to the best of my knowledge and belief: Signature:	Identification documents

14. ACTION	DATE	NAME	See Block 7	15.	16.	17. ENDORSEMENT Management Authority
Received:			A			
Inspection			B			
Research			C			
			D			
Processing			Date			
Permit fees $:			Validity			
Permit no.			Issued			