

**MISSION REPORT TO COSTA RICA AND NICARAGUA FOR THE
CENTRAL AMERICAN SOIL REFERENCE COLLECTION AND
DATABASE PROJECT (CASREC)**

A.W. Vogel

October 21st - November 19th, 1992



INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

**MISSION REPORT TO COSTA RICA AND NICARAGUA FOR THE
CENTRAL AMERICAN SOIL REFERENCE COLLECTION AND
DATABASE PROJECT (CASREC)**

A.W. Vogel

October 21st - November 19th, 1992

INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

CONTENTS

1	INTRODUCTION	1
1.1	Major objectives of the mission	1
2	CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA	2
2.1	Fieldwork - soil monoliths and soil samples	2
2.2	CATIE's soil laboratory	3
2.3	Soil database	3
2.4	Field equipment and materials	3
2.5	Exhibition room	3
2.6	CASREC project account	4
2.7	CASREC prospects	4
3	CATIE-AUW ATLANTIC ZONE PROGRAMME	6
4	SERVICIO NACIONAL DE CONSERVACION DE SUELOS Y AGUA	7
5	UNIVERSIDAD NACIONAL AGRARÍA	8
6	CONCLUSIONS AND RECOMMENDATIONS	10

Annex 1 Day-to-day programme

Annex 2 List of addresses

Annex 3 List of CASREC tools present at CATIE

Annex 4 List of tools and documents donated by the CASREC project to the "Escuela de Suelos y Agua", UNA, Nicaragua

Acronyms:

AUW	Agricultural University Wageningen, The Netherlands
CASREC	Central American Soil Reference Collection and Database
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza, Costa Rica
DPUT	Dirección de Planificación de Uso de la Tierra, Costa Rica
ISIS	ISRIC's Soil Information System
ISRIC	International Soil Reference and Information Centre
MAG	Ministerio de Agricultura y Ganadería, Costa Rica
NASREC	National Soil Reference Collections and Databases
SENACSA	Servicio de Conservación de Suelos y Agua, Costa Rica
SOTER	World Soils and Terrain Digital Database
UNA	Universidad Nacional Agraria, Nicaragua

1 INTRODUCTION

This report describes the results of a mission to Costa Rica and Nicaragua, that was executed by Mr. A.W. Vogel, consultant, for the International Soil Reference and Information Centre (ISRIC), Wageningen, The Netherlands.

1.1 Major objectives of the mission

1. The "Centro Agronómico Tropical de Investigación y Enseñanza" (CATIE), Turrialba, Costa Rica was visited to evaluate the state-of-affairs and to discuss the future workplan for the establishment of the Central American Soil Reference Collection and Database (CASREC), in development since 1991. This visit was needed in view of the departure of two CATIE staffmembers linked to the CASREC project, Messrs. Wilbert Campos and Gustavo Ortíz.
2. On request of the Ministerio de Agricultura y Ganadería (MAG), contacts were made with the "Servicio de Conservación de Suelos y Agua" (SENACSA) of Costa Rica on the establishment of various small reference collections on degraded soils.
3. In Nicaragua fieldwork was carried out for the CASREC project in close cooperation with CATIE and the "Universidad Nacional Agraria" (UNA), the latter also working on the establishment of a small national soil reference collection in Managua.

1.2 Itinerary

21/10	Travel Amsterdam- Managua
22/10- 26/10	Managua- UNA
27/10- 1/11	Turrialba- CATIE
2/11	San José- MAG/SENACSA
3/11- 17/11	Managua- UNA, fieldwork
18/11	Travel Managua- Amsterdam

2 CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA

Persons contacted:

Dr. Arturo Vargas F. Asesor de Director/ Coordinador de Asuntos Especiales de la Direccion General
Dr. Donald L. Kass Coordinator CASREC; Lider Proyecto AFN (Arboles Fijadores de Nitrogeno)-CIID
Dr. Jose Arce Borde Jefe del Area de Capacitacion, Escuela de Posgrados
Mr. Roberto Diaz Head, soil laboratory
Mrs. Ana Patricia Leandro Chemist/ Soil laboratory worker
Mr. Mario Jimenez Soil technician

2.1 Fieldwork - soil monoliths and soil samples

Fieldwork realized in 1991 and part of 1992 resulted in a collection of undisturbed soil profiles (monoliths) and accompanying soil samples.

At present 10 monoliths from Costa Rica are collected, numbered CR01 to CR10. Information about CR05 and CR10 is not yet complete and data of both monoliths were not entered into the existing database. In addition, 4 monoliths were collected in Nicaragua (NIC01 to NIC04). All the monoliths are temporary stored in one of the greenhouses at CATIE.

Sofar the 14 monoliths collected last year have not yet been prepared for the exposition. Main constraint is the lack of knowledge on how to prepare and conserve them, because Mr. Campos, ex-trainee of ISRIC, has left CATIE. Materials necessary to execute this work, like Profile lacquer and Dermoplast, are present.

Mr. Campos, now working for Delmonte in Buenos Aires (Costa Rica), who was responsible until very recently for the practical execution of CASREC, is prepared to give training to Mr. Jimenez on the preparation of the monoliths.

All soil samples of monoliths CR01 to CR10 and NIC01 to NIC04, were analyzed at CATIE's laboratory. A print-out of all the analyzed samples was made and copies taken to ISRIC and UNA. These laboratory data were stored sofar in the current Lotus lab programme of CATIE, and not yet in ISRIC's Soil Information System (ISIS).

Duplicates of the samples were air dried and packed for transport by CATIE in November 1991. However, no further action was taken to send samples to ISRIC, where they will also be analyzed. Air transport to Holland was organized by Mudanzas Mundiales, a Costarican transport company with offices in San Jose and also Managua, Nicaragua. About ten micromorphological soil samples and some pF rings are included in this cargo.

The total weight was 152 kg, divided over four boxes. Costs are calculated to be \$1177.20.

Mudanzas Mundiales took care of the necessary requisite documents as there was a permission to export soil samples of the national "Ministerio de Energía y Minas" in San José. CATIE facilitated the number of the "Cedula Juridica" and the "Codigo de Exportación" corresponding to CATIE, as well as a letter explaining the objectives of the sending.

For maritime transport in the beginning of January are present at CATIE the following samples: rock samples (together packed in a small wooden box of about 30x30x40 cm), a wooden box with pF rings and 14 boxes with monoliths. The estimated volume is about 1.5 m³.

CATIE's laboratory is very interested in facilitating a bulk soil sample for participation in the Laboratory Exchange Programme of the Agricultural University of Wageningen (AUW), The Netherlands. A suitable location will be indicated by Dr. Kass and transport to The Netherlands of about 150 kg is possible in combination with the rest of the above mentioned samples and monoliths.

2.2 CATIE's soil laboratory

Till end 1992 CATIE's soil laboratory will not have the required capacity to analyze the samples collected in Nicaragua (NIC05 to NIC11). Serious problems exist in financing the laboratory, while at the same time there is a large number of samples that have to be analyzed from the various regional projects.

There exists severe preoccupation on the future of the soil laboratory. It is very well possible that at the end of 1992 the lab will be functioning without Dr. Diaz, head of the Soil Laboratory, who will probably retire. It is said that ICRAF is interested in financing this vacancy for a new head of the soil laboratory.

The direction of CATIE, as explained by Dr. Vargas, will give high priority to all soil related activities within CATIE. However, with the departure of Dr. Diaz (USAID funds) an internal solution has to be found. One possibility mentioned was that Dr. Kass or another soil scientist within CATIE might assume lab responsibilities.

2.3 Soil database

The ISIS3 programme, installed last year, is still on the hard disk of the laboratory computer and ready to use. Nobody works with it, however.

Dr. Arce, acting head of the Training Department, expressed that until now, no use was made of the existing programme ISIS3. At his section there was no information on the Soil Data Graph programme. This is probably due to an insufficient communication between the sections.

Great interest exist in using and applying both the ISIS and Soil Data Graph programs. It is necessary to send all information to Dr. Arce who will transfer it to CATIE's library, where students can make use of them.

An effort was made to install Soil Data Graph, a new ISRIC application programme to make soil and climate data diagrams and to assess soil and land parameters. The package sent to Dr. Kass, was received by mail at the end of the mission and due to some technical problems and a lack of time there was no possibility to install the programme on one of the computers of CATIE. Manual and diskette remain with Dr. Kass.

2.4 Field equipment and materials

Because recently a robbery has taken place in one of the store rooms of CATIE, an inventory was made of the existing field equipment acquired with CASREC funds (Annex 3). Eleven new monolith boxes are still available for future use. Nitrocellulose and Dermoplast lacquers are present, the former purchased locally, the latter imported from The Netherlands.

2.5 Exhibition room

Several plans exist at CATIE to make a room available as exhibition hall for the monolith collection. Options at this moment are room C or room A, both located in the first pavilion. The advantage is that this building is well-located, while also unities as AUW-CATIE-MAG, SAREC and AFN-CIID are making use of it.

Aula C, actually used as storage room, has a size of about 6x10 meters. Air-conditioning is present and also good illumination. However it will cost substantial investments to get the room accommodated for its purpose as exposition hall, since it was used in the past as laboratory. In Aula C lab furniture and an extraction unit are still present. After their removal it is necessary to paint the whole room.

Aula A, presently in use as audio-visual room, looks more promising than room C, since it requires less investments. Dimensions are about 6x 8 meters, air-conditioning is present. However, that might be taken away by the present users of the room (the audio visual unit) at the moment they leave. The room is well-furnished, has two walls with black-boards, is actually darkened (requisite for the exposition) and well-painted.

Mr. Vargas, adviser to the Direction of CATIE and coordinator of special cases within CATIE expressed that the originally very well promising option to use the ex-restaurant as exhibition room is not longer a very realistic one. It will be transformed into auditorium and only limited wall space might be left for the exhibition of monoliths. Room A and room C have to be divided between CASREC and the section of Meteorology, so CATIE commits itself to assign some funds to upgrade both rooms. Consequently CASREC's funds can be used for its original purposes like monolith stands and illumination.

2.6 CASREC project account

The state of CASREC's project account, managed by CATIE, in the month of September was \$1608.89.

An additional amount of \$3000.= was deposited at CASREC's account on the 28th of October.

A total amount of \$1216.= (\$196.= journey San José- Managua and back + \$1020.= daily allowances) was spent on the mission of Mr. Jimenez, realizing fieldwork in Nicaragua in the period of the 2nd until the 14th of November.

A decision to contract Mr. Jimenez during the month of December has to be made very soon (cost about \$750.=/month).

Mudanzas Mundiales is charging \$1177.= for the transport of the four boxes with soil samples to The Netherlands.

The final CASREC credit will probably be \$1465.89 at the end of 1992.

2.7 CASREC prospects

For the CASREC projects, funds are coming from ISRIC and CATIE. The latter are not fully guaranteed, because most activities within CATIE depend on external funding, frequently supplied by different donor organisations. With regularity problems arise on the raising of new funds necessary to guarantee the continuity of running activities.

Persons involved in the CASREC programme are at the same time claimed by other projects who pay their salary, something that CASREC can only occasionally do. It has to be expected that in the near future it will be more difficult to find external funding for CASREC-related activities, for instance to cover travel costs and allowances for additional fieldwork. It is therefore proposed that the existing collection should be finalised before starting any further fieldwork.

CASREC's coordinator Dr. Kass, is paid for the forthcoming years by DANIDA. Mr. Jimenez, the only remaining CATIE technician who was involved in CASREC activities in the past, has a contract until the end of November 1992 and his professional future within CATIE depends

completely on the raising of new project funds by e.g. Dr. Kass. Other CASREC technicians, like Mr. Campos and Mr. Ortiz, left CATIE.

Next to this, the impression exists that less and less attention is paid at CATIE to soil-related matters. Dr. Kass is actually agroforestry coordinator and has less time left to pay attention to pedology-related activities.

Considering the need to proceed with the already initiated activities and the situation that the contract of the only CASREC involved technician, Mr. Jimenez will terminate at the end of November, it was decided to contract Mr. Jimenez for one or two months. Financing of this short contract (about \$750.=) will be taken place by means of CASREC funds. However it is necessary that in the mean time CATIE will find an additional financing to guarantee the continuation of the CASREC project.

The following activities to be accomplished by Mr. Jimenez in the month of December 1992, are proposed:

- * Preparation of the existing and future monoliths after receiving a short training course by Mr. Campos.
- * Registration (at the beginning of December) and preparation of all soil samples that have been taken in Nicaragua (NIC05 until NIC11) and that have to be analyzed by CATIE's lab.
- * Shipment to ISRIC, through Mudanzas Mundiales, of monolith boxes presently stored at CATIE (CR01- CR10 and NIC01- NIC04), and the rock and pF samples.
- * Selection of a suitable area to collect 150 kg of soil as bulk sample for the Laboratory Exchange Programme of the AUW. This bulk sample will be included in the shipment.
- * Storing of all field data and lab data of monoliths CR01 to CR10 and NIC01 to NIC11 in CATIE's ISIS3 system.

3 CATIE-AUW ATLANTIC ZONE PROGRAMME

Persons contacted:

Dr. Robert Sevenhuysen	Coordinator
Dr. Donatus Jansen	Researcher/ Teacher
Ir. Andre Nieuwenhuis	PhD student AUW (Chronosequence volcanic ash soils)

Dr. Sevenhuysen as well as Dr. Jansen, of the Atlantic Zone Programme (a cooperation project between CATIE, AUW and MAG- the Costarican Ministry of Agriculture) expressed their experiences on cooperation with CATIE. Some other locations for an exposition outside CATIE were mentioned:

- The "Servicio de Conservación de Suelo y Agua" (SENACSA).
This is an executing entity and does not have a research tradition. Also it is uncertain if SENACSA does have the personnel and necessary infrastructure.
- The "Escuela de Agricultura de la Región del Trópico Húmedo" (EARTH).
This school is among others working on soils but its attention is limited to subjects and problems related to the Atlantic Zone. Students come from all over Central America.
- The "Universidad de Costa Rica".
This university is partially competing on education activities with CATIE and a transfer of CASREC's activities might cause problems.
- The "Universidad Nacional Agraria (UNA)" of Costa Rica.
This agricultural university is developing activities to train students as geographers and there is one German soil scientist, who might be interested.

Telephone contact was made with Mr. Nieuwenhuis, working as PhD student at the Atlantic Zone Programme's research station in Guapilez. Joint activities with CATIE in the past did not work out very well: analytical information was kept at CATIE, agreements on fieldwork were not kept, etc. For those reasons until now only one profile was sampled together: CR05, while CR10 was an isolated activity of CATIE's technicians. Of the latter profile only the monolith was taken, without any soil sampling and soil description.

Mr. Nieuwenhuis is still interested to cooperate with CASREC in the near future. Available analytical information of CATIE was sent to him. A suggestion was made that CASREC should request the services of Mr. Valverde, working as a technician for the Guapilez research station. He has already some experience in preparing monoliths and might assist in the preparation of the monoliths at CATIE.

4 SERVICIO NACIONAL DE CONSERVACION DE SUELOS Y AGUA

Person contacted:

Drs. Pieter M. Dercksen Technical Adviser/ Coordinator FAO Project GCP/COS/012/NET

At SENACSA (Servicio Nacional de Conservación de Suelos y Agua) a meeting was organized with Mr. Dercksen, "Asesor Técnico Principal", Proyecto GCP/COS/012/NET, who is interested to incorporate NASREC related activities into his project. Very recently SENACSA has been restructured, now being part of the "Dirección de Planificación de Uso de la Tierra" (DPUT), forming part of the Ministry of Agriculture (MAG). The above mentioned project is executed by FAO and financed by the Dutch government; it was approved at the beginning of this year and has a total budget of \$ 4.8 million over a period of 5 years.

The activities of the FAO project consists in supporting 4 regional centres of the Agricultural Ministry: "Chuloteca" (Guanacaste), "Pacífico Central", "Valle Central Oriental" (Cartago) and "Región Central" (Puriscal). In each region two pilot areas are selected, in which about 25 farmers are living and with whom technical and socio-economic related activities will be developed. The latter will be realized by way of a direct cooperation with farmers associations (related to agricultural commodities e.g. coffee).

Mr. Dercksen considers as most promising option the collection of monoliths in the already selected pilot areas, while the central theme should be soil degradation. The monoliths and their information should be exhibited at the pilot place or regional MAG centre itself and should include about 8 profiles per area (two soil series with different stages of degradation). Less emphasis should be put on soil analyses and more on land use and productivity. The potential user of the information will be the farmer and/or extensionist himself.

Taking and preparing the monoliths will be a problem, since at DPUT there are only three soil scientists, who are fully occupied. However project funds exist to contract temporary national or international consultants. The former might be in form of a cooperation with CATIE, although both institutes have no tradition to work together.

Considering the possibility of transferring CASREC to another place, SENACSA does not seem a promising option. SENACSA's interest is related to national soil degradation and conservation and cannot operate at Central American level.

At present there is little interest in making use of and/or participation in SOTER facilities c.q. activities, offered by ISRIC. Taking into account the initial stage of the SENACSA supported FAO project, priorities have already been defined and existing capacity has been adsorbed. For instance actual training is given to two SENACSA technicians at the AUW in use and management of ARCINFO, the package that is going to be used as Geographic Information System. Also a commitment exists on facilitating data to the WOCAT (World Overview of Conservation Activities and Technics) project, coordinated by the University of Bern, Switzerland.

All the information from ISRIC's side will be passed to Mr. Dercksen's counterpart, Mr. Monge. Depending on the reaction of MAG, further decisions will be taken on the above mentioned soil reference collections plan.

5 UNIVERSIDAD NACIONAL AGRARÍA

Persons contacted:

Ing. Matilde Somarriba Chang	Dean
Ing. Francisco Salmeron Miranda	Director
Ing. Edmundo Umana	Jefe del Departamento de Riego y Conservacion de Suelo
Marta Izquierdo MSc.	Jefe del Departamento de Suelos
Ing. Efrain Acuna Espina	Teacher/Researcher
Ignacio Rodriguez Ibarra	Teacher/Researcher
Ir. Sytze de Bruin	Asesor holandés

Fieldwork was realized in the period of 4th to 12th November as a joint effort between the institutions actually involved in CASREC: UNA, CATIE and ISRIC. In order to provide a monolith to each of the collections in Nicaragua, Costa Rica and ISRIC, three monoliths were taken at each site and sufficient soil material was collected to be analyzed at the three laboratories.

Coordination of activities in Nicaragua was made by Mr. Acuña, interim head of the Soil Department of the National Agricultural University, UNA. Mr. Salmeron, Director of the School of Soil and Water gave full support to the project. The team of UNA personnel participating in the field activities was composed of members of the Land Evaluation group: Mr. Rodriguez, Mr. Castillo and Mrs. Gutierrez, as well as Mr. de Bruin, Dutch expert working with the Land Evaluation group. In addition, four laboratory assistants of the UNA Laboratory of Soil & Water as well as one of the drivers participated in the fieldwork.

Most field equipment was present, while a few missing items were purchased with CASREC funds. In addition, 24 monolith boxes were made locally.

Information is available on all soil profiles. These soils were described and partly sampled in the past for other purposes. The first part of the preselected soil pits (related to the sequence Volcán Masaya- Timal) is being used for excursions with students of UNA, while the other part (Carazo-Masachapa) counted on information collected for a study on 'Talpetate (duripan) soils' that was presented at a congress in Mexico. All soil pits were cleaned and enlarged for the description and sampling.

The following sites were studied and sampled:

<u>ISRIC code</u>	<u>Location</u>	<u>Classification (preliminary)</u> -Soil Taxonomy
NIC05	Volcán Masaya	Vitrandept
NIC06	Nindiri	Typic Dystrandept
NIC07	El Plantel	Udic Duric Haplustoll
NIC08	Timal	Udic Rhodustalf (?)
NIC09	Timal	Typic Pellustert
NIC10	Los Rizos	Typic Durustoll
NIC11	Montelimar	Udic Duric Haplustoll

The newly collected monoliths and soil samples for CATIE and ISRIC were delivered at the office of Mudanzas Mundiales, Managua to be sent to Turrialba and ISRIC. Transport to CATIE will cost about \$600.= and can be expected to take place in the beginning of the month of December. The other part, to be sent to ISRIC will first be transported overland to Puerto Limon, Costa Rica and

from there shipped to ISRIC. The costs are estimated at about \$2000.=. Mudanzas Mundiales will take care in both cases of the necessary export permissions and will claim costs for this to Bongers International Movers, Wageningen.

The ISIS3 and Soil Data Graph programmes were installed on and adapted to the computer of the "Land Evaluation" group of the UNA Soil Department. A demonstration of both programmes was given to personnel of the Land Evaluation group and the laboratory who participated in the fieldwork. Input of the field data of the monoliths NIC05 to NIC11 has still to be done. Climatic data are lacking at present and should be collected.

The preparation of the monoliths has to be realized within a reasonable time. Mr. Jimenez, after receiving his training at CATIE, might come over again to work together with UNA on this activity. Another possibility to be considered, is the enlistment of Mr. Zelaya, teacher/investigator of the UNA with experience in monolith preparation. Mr. Zelaya is actually finishing his MSc. study in Mexico. Necessary materials not obtainable in Nicaragua, like Dermoplast, have to be provided by ISRIC.

Display of the soil monoliths will be done in a small exhibition room that has been reserved already for this purpose.

The compilation of data related to every soil monolith need special attention. Available information has to be presented in a brief technical report, the so called Soil Brief, as a joint effort between UNA and ISRIC.

6 CONCLUSIONS AND RECOMMENDATIONS

1. The CASREC project has to be maintained at CATIE, in spite of uncertainties about the necessary funds that have to be allocated by CATIE to execute the project.
2. Priority has to be given to the preparation of collected soil monoliths (CR01 to CR10 and NIC01 to NIC11) both at CATIE and UNA. It is strongly recommended to complete the activities on the collected soils before new fieldwork is started in Honduras and Guatemala.
3. Laboratory analysis of the soil samples has to be realised by the laboratories of CATIE and ISRIC and if possible UNA. The latter only for samples taken in Nicaragua.
4. The collected information should be stored within or copied to the databases present at CATIE and at UNA. Further required information (e.g. on climate) has to be collected. Efforts should be made to compile the final data related to each soil monolith in a brief technical report (Soil Brief).
5. One of the two rooms proposed by CATIE's administration will have to be accommodated as exhibition room in order to display the prepared soil monoliths as well as the accompanying information.
6. It is necessary that CATIE sends monoliths CR01 to CR10 and NIC01 to NIC04 to ISRIC, as soon as possible.
7. It is recommended that persons involved in CASREC will make better use of all CASREC-related information and computer programs (like ISIS3 and SOLGRAPH). At the same time this information should also be accessible to all other potential users within and outside CATIE.
8. ISRIC should give support to SENACSA if this institution decides to establish a number of collections on degraded soils in five pilot areas.
9. ISRIC should give support to the already initiated activities of UNA to establish a national collection on representative 'key' soils of Nicaragua.
10. It is proposed that the CASREC project will strengthen its contacts with the AUW Atlantic Zone project.
 - It should be explored if Mr. Valverde, technician of this project, may give assistance to the CASREC project.
 - To renew contact with Mr. Nieuwenhuis to finalize the 1991 workplan of soil monoliths in the Atlantic zone.

ANNEX 1: Day-to-day programme

- 22 October Arrival in Managua, Nicaragua
- 23 October Participation in a seminar on investigation and extension, organized by the faculty of Natural Resources of the Agricultural University of Managua (UNA), Nicaragua.
- 24 October Instructions to local carpenter about the fabrication of 25 monolith boxes. Telephone contact with Dr. Kass, coordinator of the NASREC programme within Central America –CASREC.
- 25 October Adaptation the ISIS3 programme on the portable computer.
- 26 October Meetings with the director of UNA's school of Soil & Water, Mr. Salmeron, the group of teachers/ investigators working in the field of land evaluation, and Mr. de Bruin, the Dutch expert working with this group. Explanation of the objectives of the visit and agreements on the field work. Inventory of the existing equipment and information necessary to realize the field work, and elaboration of a list of purchases to be made.
- 27 October Travelling from Managua to San José by plane. Reception by Dr. Kass, coordinator of the CASREC programme. First exchange of views and aims of the visit. Check with Mr. Jimenez of state of last year collected soil samples and monoliths collected in 1991. Inventory of the existing field equipment present at CATIE, purchased last year (Annex 3).
- 28 October Visit to future exhibition room C, where soil monoliths will be exhibited. Check of CASREC's account. Deposition of \$3000.= on CASREC's account. Contact by telephone with Mr. Campos, ex-trainee of ISRIC and until recently responsible for the practical execution of CASREC. Agreement about some local training to Mr. Jimenez in the preparation of the monoliths at the end of November 1992. Meeting with Dr. Diaz, head of the Soil Laboratory. Discussion about the future of CATIE's soil laboratory and its capacity to analyze soils for CASREC in the future. Calculation of all the materials to be sent to ISRIC. Contact by telephone with Mudanzas Mundiales in San Jose, for the transport of materials by air and sea freight. Meeting with Dr. Arce, head of the Department of Training, and potential user of ISIS3 and Soil Data Graph. Contact with Dr. Jansen, investigator and professor within the AUW-CATIE-MAG programme.
- 29 October Meeting with Dr. Sevenhuysen, coordinator of the AUW-CATIE-MAG Atlantic Zone Programme. Telephone contact with Mr. Nieuwenhuis, working at AUW's Guapilez research station and involved in CASREC activities in Costa Rica. Contact with Mrs. Leandro, chemist and working as laboratory worker to receive a print-out of all analyzed samples of CASREC. Discussion about the use of ISIS3 and Soil Data Graph. Listing of boxes to be sent to ISRIC by air. Final meeting with Dr. Kass about the future of CASREC and activities to be realized in the coming months. Visit to the proposed exhibition room A. Meeting with Mr. Vargas, adviser to the Director of CATIE and coordinator of special cases within CATIE to explain CASREC's aims and activities and advocate the necessity of a good exhibition room.
- 30 October Farewell to Dr. Kass and travelling with Mr. Jimenez to San José. Visit to the Phytosanitarian Department in San José to get a permit to export soil samples (such a permit was not necessary). Visit to the office of Mudanzas Mundiales in San José. Delivery of soil samples to be sent by air and further discussion about future arrangements between CASREC/ ISRIC and Mudanzas Mundiales.

31 October/ 1 November Working on mission report.

2 November Visit to SENACSA (Servicio Nacional de Conservacion de Suelos y Agua) and meeting with Mr. Dercksen, Asesor Tecnico Principal, Proyecto GCP/COS/012/NET, interested to incorporate NASREC related activities into his project. Provisional agreement on set up of a small collection in different areas of Costa Rica focused on soil degradation. Travelling by plane with Mr. Jimenez from San José to Managua.

3 November Preparation of fieldwork at UNA: collection and final acquisition of field information and equipment, arrangements about participating personnel of UNA.

4 November Fieldwork Nindiri.

5 November Fieldwork El Plantel.

6 November Fieldwork Timal.

7 & 8 November Input fielddata in ISIS computer programme.

9 November Fieldwork Timal.

10 November Fieldwork Volcán Masaya.

11 November Fieldwork Los Rizos.

12 November Fieldwork Montelimar.

13 November Contact with Mudanzas Mundiales, Managua to make arrangements about the transport of monoliths and soil samples to CATIE and ISRIC. Financial administration and updating/processing of field data. Preparation (drying) and packing of soil samples.

14 & 15 November Free. Mr. Jimenez leaves for Costa Rica.

16 November Installation and adjustment of ISIS3 and Soil Data Graph programmes on the computer of the "Land Evaluation" group of the UNA Soil Department. Delivery of monoliths and soil samples at the office of Mudanzas Mundiales.

17 November Demonstration of ISIS3 and Soil Data Graph programmes to the Land Evaluation group and laboratory who participated in the fieldwork. Telephone contacts with Dr. Kass and Mudanzas Mundiales, Costa Rica.

18 november Departure for The Netherlands.

Annex 2: List of addresses

COSTA RICA

CATIE (Centro Agronomico Tropical de Investigacion y Ensenanza)

CATIE 7170

Turrialba

Telefonos: 09- 506- 56 64 31

09- 506- 56 01 69

Telex: 8005 CATIE C.R.

Fax: 09- 506- 56 15 33

Dr. Ruben Guevara Moncada- Director CATIE

Dr. Romulo Oliva Felipe- Vice-Director CATIE

MSc. Arturo Vargas F.- Asesor de Director/ Coordinador de Asuntos Especiales de la Direccion General

Dr. Joseph Saunders- Director Producción Agropecuario Sostenible

Dr. Donald L. Kass- Coordinator CASREC; Lider Proyecto AFN (Arboles Fijadores de Nitrogeno)-CIID (Centro Internacional de Investigaciones para el Desarrollo)

Tel. home: (09- 506-) 56 01 51

Mrs. Marisol Cedeno M.- secretary of Dr. Kass

Tel.: CATIE- extension (#) 225

Roberto Diaz MSc.- Head soil laboratory

Tel. home: (09- 506-) 56 02 52

Mrs. Ana Patricia Leandro- Chemist/ Soil laboratory worker

Mario Jimenez BSc.- Soil technician

Dr. Jose Arce Borde- Jefe del Area de Capacitación Escuela de Posgraduados/ Part time working on Production Systems

SENACSA (Servicio Nacional de Conservacion de Suelos y Aguas)

Sabana Sur

La Salle

Ing. Luis Demitrio Monge- Director Dirección Planificación de Uso de la Tierra (DPUT)

Ing. Antonio Zumbado Rojas- Subdirector DPUT

Drs. Pieter M. Dercksen- Technical Adviser/ Coordinator FAO Project GCP/COS/012/NET

Tel. home: (09- 506-) 20 13 23

Communication through:

Pieter M. Dercksen

Organización de las Naciones Unidas para la Agricultura y la Alimentación

Apartado Postal 8198 1000

San Jose, Costa Rica

Fax: (09- 506-) 326137

Telex: 3082 FOODAG, Costa Rica

Programa Zona Atlantica/ CATIE- AUW- MAG

Dr. Robert Sevenhuysen- Coordinator

Tel. home: (09- 506-) 56 63 97

Dr. Donatus Jansen- Researcher/ Teacher

Steunpunt Guapilez

Tel.: (09- 506-) 71 65 95

Ir. Andre Nieuwenhuis- PhD student AUW (Chronosequence volcanic ash soils)

Sr. Guillermo Valverde- Soil technician

Mudanzas Mundiales (International Movers)

Apartado Postal 6540

1000- San Jose

Carretera Radial Zapote- Curridabat

Tel.: (09- 506-) 24 25 25

Fax.: (09- 506-) 53 33 90

Mr. Minor Vasquez- Responsable Operaciones Aerea

Mr. Alvaro Arias Ch.- Operaciones Carga Aerea

Mrs. Cynthia Medina M.- Reservaciones y Operaciones

NICARAGUA

UNA (Universidad Nacional Agraria)

Apartado Postal 453

Carretera Norte Km 12.5

Managua

Tel.: 09- 505- 2- 31619/ 31439/ 31501/ 31968

Fax: 09- 505- 2- 31950

Facultad de Recursos Naturales y del Ambiente:

Ing. Matilde Somarriba Chang- Decana

Escuela de Suelos y Agua:

Ing. Francisco Salmeron Miranda- Director

Ing. Edmundo Umana- Jefe del Departamento de Riego y Conservacion de Suelo

Marta Izquierdo MSc.- Jefe del Departamento de Suelos

Ing. Efrain Acuna Espina- Teacher/Researcher

Ignacio Rodriguez Ibarra- Teacher/Researcher

Ir. Sytze de Bruin- Asesor holandés

Mudanzas Mundiales (International Movers)

Apartado Postal: A- 202

Carretera Norte

Managua

Tel.: 09- 505- 2- 42570/ 43396/ 43886

Fax.: 09- 505- 2- 42482

Sr. Guillermo Ulate- Gerente general

Annex 3: List of CASREC tools present at CATIE

- 1 Puñal
- 1 Serrucho
- 1 Sierra (3 hojitas de reserva)
- 1 Tenedor de jardín
- 1 Barra de acero
- 1 Palín
- 3 Palas
- 2 Cuchillos puño madera
- 1 Cuchillo puño plástico negro
- 3 Cuchillos de perfil
- 1 Destornillador
- 1 Peine de jardín
- 3 Rabozorro
- 1 Macana
- 1 Tijera fina
- 2 Pares de tijeras de podar
- 3 Cinceles de albañil
- 1 Brocha
- 1 Cepillo raíz
- 1 Cuchillo plano
- 1 Lima
- 2 Martillos geológicos
- 3 Mazos
- ? Bandejas de tela
- 3 Termos
- 1 Termo
- 2 Vasos
- 5 Espátulas
- 11 Caja de contrachapado para tomar monolithos

Annex 4: List of tools and documents donated by the CASREC programme to the "Escuela de Suelos y Agua", UNA, Nicaragua.

- 1 Cinta de medir
 - 1 Puñal
 - 1 Serrucho
 - 1 Par de tijeras de podar
 - 3 Cinceles de albañil
 - ? Bolsas pequeñas de plástico para tomar muestras
 - 34 Cajitas para muestras micromorfológicas
 - 3 Tapes para sellar anillos pF
 - 3 Bandejas de tela de 4 metros de largo y 10 cms de ancho
 - 2 Marcadores
 - 3 Espátulas (2 grandes y 1 pequeña)
 - 1 Caja de contrachapado para tomar monolithos
 - ? Tornillos
-
- Procedures for soil analysis, Technical Paper 9 (third edition), L.P. van Reeuwijk, ISRIC (1992)
 - Procedimientos para la colección y preservación de perfiles de suelo, J.H.V. van Baren & W. Bomer; ISRIC Publicación Técnica #1 (1982)
 - NASREC Formatos para la descripción del perfil
 - Guidelines for the description and coding of soil data, E.J. van Waveren & A.B. Bos; Technical Paper ISRIC # 14 (1988)
 - ISRIC Soil Information System- User Manual- Technical Manual, E.J. van Waveren & A.B. Bos; Technical Paper # 15 (1988)
 - Soil Data Graph, Soil and Climate Data Diagrams and Tabular Soil/Land Parameter Assessment, J. Brunt & J.H. Kauffman; Working Paper and Preprint 92/08 (1992)
 - 4 Disquettes and back-up of: ISIS3, DBASE, LOTUS y SOIL DATA GRAPH

