



## Report on a cooperation mission to the KENYA SOIL SURVEY

February 1990

E.M.A. Smaling

## International Activities Report 4

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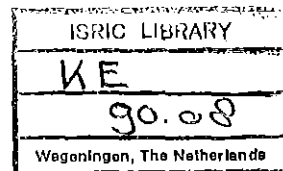
Wageningen (The Netherlands), 1990

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The WINAND STARING CENTRE, Wageningen (The Netherlands), 1990

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The WINAND STARING CENTRE is continuing the research of: Institute for Land and Water Management Research (ICW), Institute for Pesticide Research, Environment Division (IOB), Dorschkamp Research Institute for Forestry and Landscape Planning, Division of Landscape Planning (LB), and Soil Survey Institute (STIBOKA).

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## SUMMARY

1. Uncertainty on the affiliation of Kenya Soil Survey (KSS) finally came to an end by late December 1989. The National Agricultural Research Laboratories (NARL), and thus KSS as one of its Sections, are now part and parcel of the Kenya Agricultural Research Institute (KARI).
2. In January 1990, the Twinning Agreement between KSS and the Winand Staring Centre (WSC) was received by the Royal Netherlands Embassy (RNE), duly signed by all Kenyan and Dutch parties involved. DGIS will now officially subcontract the WSC as the twinning partner of KSS. The duration of the sub-contract between DGIS and WSC will be four years (1990-1993).
3. A budget was drafted (Dutch component) for the year 1990, including the immediate recurrent needs for a period of three months. The breakdown (Annex 1) shows a total expected expenditure of Dfl. 1,000,000/=.
4. Donor funds are to reach KSS:
  - a. via DGIS and WSC: backstopping, consultancies, equipment 'abroad' and training 'abroad';
  - b. via RNE and WSC: (costly) equipment and services 'local';
  - c. via RNE and KARI: vehicles, recurrent costs, training 'local' and travel abroad.
5. On recurrent costs, RNE prefers to release installments only when accounting has been found in order not only for KSS, but also for some other Dutch-supported KARI-activities. Up to now, this has proved to delay the availability of donor funds at KSS. The WSC representative is of the opinion that there is no point in treating the separate activities as one KARI-project, since they are not related in any other way.
6. The WSC representative considers it a severe draw-back that the Kenyan fieldwork budget is often depleted by conducting surveys, free of charge, for individuals or institutions who are in a position to pay. Also, the systematic survey programme is seriously retarded by such ad-hoc activities.
7. On January 1 and July 1, KSS should receive its half-yearly fieldwork budget (Kenyan component). However, it can take up to two months before this is actually available. The implication for KSS is that in the dry and fieldwork-friendly months of January, February, July and August, no journeys can take place, also because there is no carrying-forward of funds remaining from the previous six months. Because KSS has no income of its own yet, a modest reservoir of Dutch funds is earmarked to support the fieldwork programme in 1990.

8. Now that KSS is incorporated in KARI, the mandate can be slightly modified. The tasks of KSS are now best partitioned as follows:

- a. Systematic survey programme
- b. Data storage and GIS development
- c. Commissioned surveys and public relations
- d. Soil research programme

9. As to reconnaissance and semi-detailed surveys, the Head KSS and the WSC representative agreed to gradually shift the emphasis to the district and divisional level, rather than remaining at the present procedure of mapping quarter degree sheets. The District Focus for Rural Development requires such an adaptation.

10. At present, land use planning in Kenya faces an increasing need for quantitative, easily retrievable information on natural resources. If KSS wants to remain an important institution in this field, the installation and operationalization of a Geographical Information System is a requisite. It is the intention of the Head KSS and the WSC representative to rapidly develop the KSS section "Data storage and retrieval" during the forthcoming years.

11. Preparing a digitized update of the most important map of KSS, the Exploratory Soil Map (scale 1 : 1 000 000), should receive priority in the work programme for 1991, as the 1980 version has been taken out of circulation.

12. A special mission to be held in mid-1990 will address the development of a database and the use of a GIS at KSS. This workshop will consist of lectures on the use of a GIS, discussions with officers on the desirable GIS-future at KSS, assessment of the hardware/software requirements, assessment as to present achievements on database development and the need for training, and visits to other GIS-users in the country.

13. DGIS requested the WSC representative to monitor the achievements as to the reporting backlog by July 1990. It is of the utmost importance that a number of reconnaissance survey reports have reached (near) completion by then.

14. For the moment, KARI holds the policy of investigating the staff requirements of each research centre, and then possibly reshuffle among the centres. New staff can for the moment only be recruited through this reshuffling. Fresh college leavers are not expected to be deployed to KSS in 1990.



## 1 INTRODUCTION

During the period between January 27 and February 25, 1990, Ir. E.M.A. Smaling of the Winand Staring Centre for Integrated Land, Soil and Water Research, Wageningen, The Netherlands (WSC) spent 2.5 weeks on a working visit to the Kenya Soil Survey (KSS). This institute is supported through a bilateral agreement between the Netherlands Directorate for International Cooperation (DGIS), and the Kenya Agricultural Research Institute (KARI), which is part of the Ministry of Research, Science and Technology. The cooperation between KSS and WSC is laid down in a so-called "Twinning Agreement".

The previous meetings between the two sister institutes took place in March and in June/July 1989. The reports on these missions are available at the Winand Staring Centre, Department of International Cooperation.

The terms of reference for the present mission were:

1. Follow-up of the "Twinning Agreement" document and contacting the relevant authorities dealing with the subject matter for necessary consultations.
2. Review the tentative breakdown of Netherlands financial commitment to Kenya Soil Survey (KSS) for the financial year 1989/90. In consultation with KARI and KSS, prepare a tentative breakdown of Netherlands financial commitment to KSS for the financial year 1990/91.
3. In consultation with KSS officers, review the equipment requirements of the various sections as well as the transport needs.
4. Review training requirements: long-term and short-term training (both overseas and local) refresher courses, workshops, seminars and regional meetings.
5. Review training and equipment requirements for the proposed KSS automated data storage and retrieval/GIS.
6. Review reporting backlog progress with the relevant individual officers.
7. Discuss any other subject matter pertaining to the well-being of KSS that may not be included in points 1-7 above.

## 2 KSS IN KARI

Uncertainty on the affiliation of KSS finally came to an end by late December 1989. The National Agricultural Laboratories (NAL), and thus KSS as one of its Sections, are now part and parcel of the Kenya Agricultural Research Institute (KARI).

For more than one reason this development can be regarded as a very important step ahead. It will entail a better scheme of service for the officers, evaluation of individuals according to work performance, easier access to both, Kenyan as well as donor funds, more emphasis on problem-oriented research, easier soliciting for research funds, and hopefully soon the establishment of a revolving fund for KSS.

NAL was renamed into NARL (R = Research), emphasizing the increasing importance of agricultural research at the institute. KSS officers will write research proposals each year, which can, if approved, be forwarded to possible donors for funding.

### 3 TWINNING AGREEMENT

In January 1990, the Twinning Agreement was received by the Royal Netherlands Embassy (RNE), duly signed by all Kenyan and Dutch parties involved. DGIS will now officially subcontract WSC as the twinning partner of KSS. The duration of the subcontract between DGIS and WSC will be four years (1990-1993). Compliance with the Twinning Agreement entails the following activities:

- installation of a 'Project Liaison Unit', a group of highly-qualified agriculturalists assisting WSC in providing scientific backup to KSS;
- writing of an 'Inception report' by WSC;
- writing of quarterly reports on work progress by the head KSS, starting from April 1, 1990, to be directed to KARI and RNE in Kenya and to DGIS and WSC in The Netherlands (2-4 pages);
- writing of annual reports, giving a detailed account of the work progress in all sections and in all the different fields of work.

Upon endorsement of the Twinning Agreement, laboratory, cartography, survey and office equipment that is not locally available, can be procured abroad.

Also, the training programme and attendance of short courses and seminars can now be executed according to the joint projections of the head KSS and the WSC representative.

## 4 FUNDING

## a. Dutch component.

The donor funds are to reach KSS as follows.

## \*\*\* Via DGIS and WSC:

- remuneration of the sub-contractor (WSC, budget line 9100);
- annual consultancy (budget line 9200);
- equipment, that is not locally available (budget line 9400);
- training outside Kenya (budget line 9600).

## \*\*\* Via RNE and WSC:

- (costly) equipment or services provided in Kenya (budget line 9400).

In order not to deplete the regular quarterly installment to KSS, the WSC representative will coordinate such expenditures during his visits to Kenya. In such cases, RNE can occasionally be invoiced directly.

## \*\*\* Via the RNE and KARI:

- purchase of vehicles (budget line 9400),
- recurrent vote (budget line 9500),
- air fares, local training and attendance of regional workshops and conferences (budget line 9600).

The WSC representative hopes that, starting from April 1, 1990, installments from RNE to KARI will be on a quarterly basis, with replenishment upon 50% accounting of the first installment. So far, one installment has been received and spent at KSS (Dfl. 35,000/=). Invoices were submitted to KARI for accounting in June 1989. By February 1990, the invoices had not yet reached RNE.

RNE prefers to release a next installment only when accounting has been found in order not only for KSS, but also for the other Dutch-supported KARI-activities National Seed Quality Control Services and the Wildlife Disease Research Project. Up to now, this has proved to be time-consuming, causing a delay as to availability of donor funds at KSS. The WSC representative is of the opinion that there is no point in treating the separate activities as one KARI-project, since they are not related in any other way.

Once at NARL, the donor funds are readily available, as the Centre Director issues a cheque when requested so by the Head KSS.

During the present mission, the head KSS and the WSC representative drafted a budget for the year 1990 (Dutch financial year) and for the period July 1990-June 1991 (Kenyan financial year). The immediate recurrent needs for a period of three months are also listed. The breakdown of this budget, which equals an amount of Dfl. 1,000,000/= for 1990, is given in Annex 1.

b. Kenyan component

The Kenyan budget is largely made up of salaries, and also station upkeep. Moreover, half-yearly amounts are made available for recurrent costs. This basically encompasses fuel and daily allowances for fieldwork.

The WSC representative considers it a severe draw-back that these, mostly modest, half-yearly amounts are often depleted by conducting surveys, free of charge, for individuals or institutions which are in a position to pay. Also, the systematic survey programme, such as the Narok reconnaissance survey, is delayed by such ad-hoc activities.

Moreover, it takes up to two months before this money is available. The implication for KSS is that in the dry and fieldwork-friendly months of January, February, July and August, no journeys can take place, also because there is no carrying-forward of funds remaining from the previous six months.

Because KSS has no income of its own yet, a modest reservoir of Dutch funds is earmarked in 1990 to support the fieldwork programme.

There have also been complaints on the malfunctioning of the NARL Supplies section. When certain goods are needed from town, the Centre Director issues a Local Purchase Order to this section. Next, it can take long before the goods are purchased, and sometimes even the wrong items are bought.

5 MEDIUM-TERM PLANNING 1990-1993

Now that KSS is incorporated in KARI, its mandate can be slightly modified. The tasks of KSS are now best partitioned as follows:

- a. Systematic survey programme
- b. Data storage and GIS development
- c. Commissioned surveys and public relations
- d. Soil research programme

a. Systematic survey programme

On reconnaissance and semi-detailed surveys, it was agreed to gradually shift the emphasis to the district and divisional level, rather than remaining at the present procedure of mapping quarter degree sheets. Kenya's goal to decentralize, laid down in the District Focus for Rural Development, requires such an adaptation. Moreover, it has been observed that

district officers take a higher interest in information at the district level, rather than quarter degree sheets which do not coincide with administrative boundaries.

In the following years, a number of district soil maps will be drawn on a 1:100,000 or 1:250,000 scale. This refers to the Lake Basin districts, and also to the Narok, Kwale, Kilifi, Embu, Machakos and Kitui Districts. Good use can be made of compilations done in the past years by the Fertilizer Use Recommendation Project (FURP), which is also a Section of NARL. Interfacing with the Range Management Handbook project in the arid and semi-arid zones by the Ministry of Livestock Development and GTZ will be vital, as soil maps are presently compiled in this project on a 1:500,000 scale for the Marsabit, Isiolo, West Pokot, Turkana, Mandera, Wajir, Garissa, Samburu and Baringo Districts.

The collection and display of soil monoliths will be revived, possibly in cooperation with the University of Nairobi and Egerton University. The trial sites of the FURP are excellent benchmark sites to base a monolith collection on. Each site represents wider ranges of similar environments and a complete set of soil chemical and physical data as well as crop yield data is available.

#### b. Data storage and GIS development

As good agricultural land becomes scarcer all the time, land use planners have expressed the need for more quantitative information on natural resources, that can easily be retrieved. If KSS wants to continue to be regarded as an important institution in this agricultural field, the installation and operationalization of a GIS is mandatory.

The KSS section "Data storage and retrieval" will be rapidly developed during the forthcoming years. Links have to be established and intensified with other GIS-users, such as other KARI projects in the Department of Crops, Soil and Water, the DRSSRS (formerly KREMU) and the Rural Planning Division of the Ministry of Planning and National Development, the RCSSMRS and of course UNEP. It is imperative that hard- and software be procured that is compatible to similar capabilities in the country.

At present there are two personal computers (PCs) and one matrix printer at KSS. Soon, two more PCs and another matrix printer will be purchased. Two neighbouring rooms with a connecting door will accommodate the computer section and the GIS. Special facilities will be required (locks, window bars, extra sockets, tables and chairs).

A special two-weeks mission to be held in mid-1990 will address the development of a database and GIS at KSS. This workshop will consist of:

- lecturing on the possible applications of a GIS in soil science and land use planning (2.5 days),

- discussions with officers on the desirable GIS-future at KSS, assessment as to present achievements on database development, and the need for training (2.5 days),
  - visits to KARI headquarters, DRSRS, UNEP and the RCSSMRS to streamline and integrate the GIS-activities in Kenya (2.5 days),
  - drafting of the workshop report and briefing KARI, RNE and KSS staff on conclusions and recommendations (2.5 days).
- A previous plan of operations on GIS development by R. Bos, then consultant to the RNE, will also be reviewed and used to come to a cost estimate.

Because of the incorrect indication of Kenya's borders in Turkana District, the Exploratory Soil Map (1:1,000,000) was taken out of circulation. It has meanwhile been decided not to reprint this map in its present form. First, the estimated costs of redrawing and printing of 500 copies of only the soil map already equal Dfl. 18,000/=; second, the expected installation of a Geographical Information System (GIS) leaves the option of digitizing this map, at the same time updating it by including the information gathered between 1980 and 1990. Preparing a digitized update of the Exploratory Soil Map should receive priority in the work programme for 1991 (Maingi). Some digitizing work on the now obsolete map has been done by FAO. The WSC representative will contact FAO, to investigate what kind of cooperation could be initiated.

#### c. Commissioned surveys and public relations

During the present mission, a proforma contract was drafted, which should serve as a basic document when a soil survey or land evaluation is requested by individuals or institutions. Detailed surveys and site evaluations should no longer be carried out free of charge. If this is not complied with, KSS can never work along existing budgets as casual depletions keep on adversely affecting the systematic survey programme.

The Deputy Head KSS should be in charge of public relations. He hands out brochures and other information on KSS. With clients, he discusses the terms or reference for a commissioned survey, he drafts a workplan and discusses the administrative arrangements.

Officers involved in research work should always set aside time for commissioned surveys. Deadlines should be complied with, and reports should clearly reflect the terms of reference and not dwell on details which are of no interest to the client. This subject was extensively dealt with during the workshop held in July 1989 by Dr. T. de Meester.

The brochure on KSS, which was drafted earlier, can now be completed as uncertainties as to the parent ministry have now been solved. As research has now become increasingly important, the text of the brochure will be adjusted accordingly.

#### d. Soil research programme

In February, research proposals by KSS staff are handed in to the Head KSS. Upon discussion and editing rounds with all KSS staff involved in the write-ups, the proposals are discussed at the Research Centre level, by the Technical Committee. In general, some are rejected at this stage. Those that pass are discussed by the KARI Programme Committee, whose members have a final say on the proposals remaining. Those that get past this stage can then be submitted for funding. In February 1990, eight proposals written by KSS staff were submitted to the Centre Director.

### 6 ORGANIZATION AND WORK PROGRESS (1990)

#### a. Technical meetings

Coordinators meetings will from now on be held every month, as a rule on the first Tuesday morning of each month. They should not only address logistic problems, but instead mainly serve as a forum for scientific exchange. In the present set-up, a stronger interfacing between the Head KSS and the section coordinators in this respect is required. General staff meetings will be organized once in 3 months: early January, April, July and October, coinciding with the quarterly reporting duties. The minutes of both kind of meetings must also be sent to the WSC.

#### b. Fieldwork preparation

Fieldwork for the reconnaissance surveys should be planned well in advance. The constraints are known (timely availability of funds, grounded vehicles), so every effort has to be made to keep the officers going to the field, particularly during the dry season. The issue of proper planning was extensively dealt with by Dr T. de Meester during the workshop of July 1989.

Fieldwork for commissioned surveys should be handled by the Deputy Head KSS. The Dutch funds set aside to support the fieldwork are, in principle, only meant for circumstances that preclude proper compliance with a deadline.

In a few years time, KSS should be allowed to retain and reinvest the revenues of the commissioned surveys and the sales of old vehicles.

### c. Personnel duties

The job descriptions and annual workplans of each officer will be clearly spelled out in a separate document requested by KARI. It should serve several purposes:

- showing KARI that there is a need for expansion, particularly for Technical Assistants in the field and in the physical and chemical laboratories, for drivers and for typists;
- to avoid obvious complaints of officers being overloaded with sideline but time-consuming duties;
- to avoid officers putting the blame on lack of progress to other people or secretaries;
- to evaluate the work performance of KSS officers objectively.

### d. Reporting backlog

The reporting backlog was dealt with at length during the 1989 workshop by Dr. T. de Meester. The achievements in this respect will be monitored by July 1990. A number of reconnaissance surveys must have reached (near) completion by this time.

The pending reports and responsible officers are:

Makueni (R5) - Njoroge  
 Busia (R8) - Rachilo  
 Galole (R9b) - Kibe  
 Bondo (R10) - Gicheru  
 Transmara (R13) - Okoth, Wamicha  
 Malindi (R14) - Gatahi  
 Narok (R15, fieldwork on-going) - Aore, Kamoni, Situma, Achieng  
 Chuka (R16) - Kiome.

## 7 STAFF SITUATION

Due to the demoralizing situation of not knowing what the future of KSS would be, six staff members left KSS during the past two years. On the other end, there were again no new recruitments.

For the moment, KARI holds the policy of investigating the staff requirements of each research centre, and then possibly reshuffle among the centres. Therefore, the duties of each officer should be clearly spelled out. Presently, new staff can only be recruited through this reshuffling. Fresh college graduates are not expected to be deployed to KSS in 1990.



At this time, KSS mainly experiences a serious lack of technical field and laboratory assistants, drivers and typists.

## 8 EQUIPMENT

The list of equipment needed at KSS has grown out of proportion, due to the fact that nothing was purchased in 1989. Now that the long-pending issue of the Twinning Agreement has been settled, the required goods can be procured by March/April 1990.

Shipment of goods purchased from abroad will be arranged by WSC through its shipping agent (Bongers, Wageningen), whereby KARI will handle the clearance through their agent (KENOMAR International (K) Ltd., PO Box 41061, tel: 340896 - Nairobi, telex 25724).

## 9 VEHICLES

Two landrovers were ordered during the present mission, through RNE and the KARI Supplies Section. One Peugeot 504 will be purchased in the second half of 1990.

The body work of the older vehicles 97Y, 486Y and 487Y can possibly be rehabilitated. Quotations will be submitted to WSC by the transport officers.

Servicing of vehicles and purchase of new tyres has suffered delays, due to accounting problems. Vehicles grounded because of such constraints start developing other problems (e.g. batteries). This would not happen, had the vehicle been moving regularly. It is advisable to deploy one driver to one car, so he would feel more responsible for its maintenance.

An engine for the long-grounded but much-valued Canter minibus will be purchased in The Netherlands.

## 10 CARTOGRAPHY

The Cartography section still shows a great dedication and a high-quality output. A technical manual is needed for the

Printvac, and the light intensity meter of the contact frame is to be replaced. A new lettering machine and printing press will be purchased soon. The section lacks numerous consumable items, which will be purchased and forwarded in due course.

## 11 LABORATORIES

### a. Soil physics

The soil physics laboratory is poorly equipped. Basically, it is only texture and pF which is measured here. The pF sand trays have developed problems in the recent past, forcing the section to turn to the NARL section 'Irrigation and Drainage'. As soil physics and management will be of increasing importance in the KSS mandate, the laboratory needs more staff and more equipment, at best suggested through problem-oriented research proposals. In this respect, it is worth mentioning the present research work on quantification of moisture availability by Kiome and a similar proposal by Gatahi. There is also a need for training of Technical Officers and Assistants in the field of soil physics, which encompasses much more than the usual texture and pF-determinations. Double-ring infiltrometers are available, but other measurements geared towards a better quantitative description of the water balance have not taken place for many years.

### b. Soil micromorphology

The soil micromorphology laboratory is well-equipped. The only urgent needs are an exhaust pipe and a fan to overcome poor aeration. Only one TO and one TA man this laboratory. Specific training on preparation and interpretation of thin sections is imperative to keep this section up to standard.

### c. Soil chemistry

The KSS soil chemistry laboratory focuses on special analysis, such as availability of micronutrients, free calcium carbonates, gypsum etcetera. Routine analysis of soil samples is done at the NARL Section 'Agro-Chemistry'. To perform the special analyses, the laboratory lacks some essential equipment. There is no flamephotometer and also no atomic absorption spectrophotometer. During 1990 and 1991, efforts are geared towards enhanced operationalization of this laboratory. The laboratory needs some new technicians (polytechnic level).

## 12 TRAINING/WORKSHOPS

## a. 1989-present

The following officers were out on training at the time of the present mission:

- Wamicha (Ph.D. Germany),
- Kiome (Ph.D. UK) - returned for fieldwork in February 1990,
- Gicheru (MSc. Nairobi) - completed studies in February 1990,
- Ekirapa (MSc. Canada),
- Wanjogu and Macharia (MSc. Nairobi),
- Kimani (Diploma Soils, ITC, The Netherlands),
- Osiemo (Cartography, ITC, The Netherlands).

In 1989, KSS officers attended the following regional meetings:

- Situma, Mare (Int. Soil Conservation Conference, Nairobi and Addis Abeba),
  - Wokabi, Aore, Gatahi (FAO Soil Correlation Meeting, Zimbabwe);
  - seven officers (East African Soil Science Society, Kisumu).
- Waruru participated in the National Soil Reference and Information Course at ISRIC, Wageningen (Oct.-Nov. 1989). Afterwards, he received a two-weeks on-the-job training at WSC on the use of WordPerfect and Lotus.

## b. Present-1991

The training projections for 1990 are given below. The following officers are due for long-term training in 1990:

- Waruru (MSc. Soil Science Arid- and Semi-arid Lands (Eremology), Gent, Belgium; on Belgian funds?)
- Aguno (Library studies, Gaborone, Botswana)
- Njoroge (BSc. West Virginia, USA)

1991:

- Achieng, Kinyanjui (BSc. West-Virginia, USA)
- Mikisi (2 months on-the-job WSC, followed by Cartography, Denmark)

Nominated for short term training, seminars and congresses in 1990 are:

- Olulo (workshop cartography)
- Ochieng (workshop or 'visiting scientist' soil fertility)
- Wokabi, Okoth (Congress Kyoto, Intern. Soil Science Society)
- Onyono (2 months on-the-job micromorphology, WSC Wageningen)
- Kamoni, Kimotho, Maingi (2-3 months informatics and GIS, ITC Enschede)
- Mare (2 month on-the-job soil physics, WSC Wageningen)
- Various officers (remote sensing courses at the RCSSMRS, including cartographers)
- Various officers (East African Soil Science Society, Arusha, Tanzania)
- Various officers (WP, Lotus, DBase, through FURP or evening courses in town).

## ACRONYMS

DGIS	Directorate-General for International Development Co-operation, Ministry of Foreign Affairs (The Netherlands)
DRSRS	Department of Resource Surveys and Remote Sensing (Ministry of Planning and National Development)
EEC	Commission of the European Community
FAO	Food and Agriculture Organization of the United Nations
FURP	Fertilizer Use Recommendation Project
GIS	Geographical Information System
GTZ	German Society for Technical Cooperation
IBSRAM	International Board on Soil Research and Management
ISRIC	International Soil Reference and Information Centre
ITC	International Institute for Aerospace Survey and Earth Sciences
KARI	Kenya Agricultural Research Institute
KSS	Kenya Soil Survey
NAL	National Agricultural Laboratories
NARL	National Agricultural Research Laboratories
RCSSMRS	Regional Centre for Services in Surveying, Mapping and Remote Sensing
RNE	Royal Netherlands Embassy
TA	Technical Assistant
TO	Technical Officer
WSC	Winand Staring Centre for Integrated Land, Soil and Water Research

## ITINERARY

- 27-1 12.00 Departure Amsterdam KL 595  
22.00 Arrival Nairobi JKA Airport
- 29-1 KSS - Mr S.M. Wokabi, head
- 30-1 KSS - Wokabi  
NARL - Dr F.N. Muchena, director
- 31-1 morning Visit to KSS/IBSRAM Vertisol research site at  
Mwea-Tebere (Embu District), with Messrs. B.  
van Helden (EEC), G. Hinga (KARI), Dr. F.N.  
Muchena and S.M. Wokabi  
afternoon KSS - transport matters (Situma, Shitakha)
- 1-2 morning KARI - briefing Mr G. Hinga, ass. director  
RNE - briefing Mr H. Hendrix, sector  
specialist, and Mr N. Visser, agricultural  
attaché  
afternoon KSS - Wokabi  
evening meeting with Dr A. Osinga, Dairy Development  
Project/Proefstation Rundveehouderij
- 2-2 morning KSS - cartography section (Olulo, Maingi,  
Mikisi)  
FURP - Dr G. Durr and Mr S. Nandwa, coor-  
dinators  
afternoon KSS - Kilambya, Gatahi, Kinyanjui, Onyono,  
micromorphology lab
- 5-2 KSS - Wokabi, Mare, Okoth, Aguno, soil physics  
laboratory; library
- 6-2 KSS - report write-up; commenting on research  
proposals
- 7-2 KSS - Rachilo, Ndaraya, Waruru, Kamoni  
Visit to dealer of Linotype typesetting machine,  
with Olulo
- 8-2 KSS - Achieng, Aore, Ochieng, Gachini, Wokabi,  
soil chemistry lab
- 9-2 morning RNE - Mr Hendrix  
afternoon KSS - drafting contract for requested surveys,  
with Kilambya  
5-7 p.m. Happy hour for all KSS staff at welfare canteen
- 10/11-2 report write-up



## ANNEX

Tentative Breakdown of Netherlands commitment to KSS for 1990 and 1991  
(January - June) in DFL '000

	<u>1990</u>	<u>1991 (January-June)</u>
I Institutional support	80	40
II 9260/9270 Personnel (consultances)	40	20
III Investment/Equipment		
9421 Soil Survey equipment	35	15
9423 Cartography equipment	105	65
9424 Laboratory equipment	35	15
9425 Office equipment	41	20
9426 Maps, journals, printing of maps	35	15
9436 Vehicles	150	75
IV Recurrent costs		
9520 Service contracts of equipment	20	10
9520 Running costs and maintenance of Vehicles	80	40
Fuel costs	35	15
Travelling and accommodation	35	20
9540 Stationery	23	10
V Training		
9610 Training in Netherlands and other countries	150	75
9620 - Training in Kenya	44	25
- Visits, regional seminars, workshops and conferences	72	30
VI 9800 Miscellaneous	10	5
	<hr/>	<hr/>
	1000	500
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EXPLANATORY NOTES ON DUTCH FUNDS EXPENDITURE FOR 1990

III Investment/Equipment

	<u>Ksh</u>	
9421 Soil Survey equipment		
6 Living tents	200,000	
2 Mess tents (office tents)	110,000	
10 Metal Jerricans	10,000	
10 Canvas foldable beds	20,000	
4 gas burners	20,000	
4 gas lamps	15,000	
4 pressure lamps	10,000	
	<u>385,000</u>	= DFI 35,000
9423 Cartographic equipment		
Type setting machine	840,000	
Non-expandable items	315,000	
	<u>1,155,000</u>	= DFI 105,000
9424 Laboratory equipment		
1 mini-rainfall simulator	50,000	
2 Tensiometers	40,000	
1 Low PF pressure Chamber	50,000	
4 Hand penetrometers	20,000	
2 Hydraulic conductivity equipment	20,000	
2 PH meters (portable)	30,000	
1 wet sieving equipment	20,000	
1 automatic titrator	10,000	
1 soil moisture density probe	50,000	
2 EC meters	30,000	
1 Electrical shaker	10,000	
2 Hot plates	10,000	
Non-expandable items	25,000	
	<u>385,000</u>	= DFI 35000



9425 Office Equipment

	Ksh	
2 Personal Computers and matrix printer	250,000	
1 Typewriter	45,000	
2 Stencil carboards	10,000	
4 Filing carbinets	60,000	
2 Library shelves	30,000	
Assorted furniture	56,000	
	451,000	= DFL.41000

IV Recurrent costs in (DFL)

9520 Service Contract of equipment (computers, photo copying machine, typewriters, printing press etc) and maintenance of equipment 20,000

9530 Recurrent costs (in DFL)

Maintenance of vehicles (repairs, servicing, tyres etc) 80,000  
 - Fuel costs 35,000  
 - Travelling and accommodation 35,000

9540 Stationery 23,000

V Training (DFL 266.000)

Long courses

9610 Training in Netherlands and other countries  
 - USA, West Virginia University C.R.K. Njoroge 40,000  
 Botswana University Michael Aguno 30,000

Short courses

I.T.C P.T. Kamoni 15,000  
 I.T.C P.W. Kimotho 15,000  
 I.T.C. P.M. Maingi 10,000  
 Wagenigen E.M. Mare 10,000  
 Wagenigen H. Onyono 10,000  
 Egypt N.P. Ochieng 10,000  
 U.S.A. D. Olulo 10,000

9620	Training in Kenya	
	University of Nairobi P.N. Macharia	18,000
	University of Nairobi S.N. Wanjohi	18,000
	Computer Training for Secretaries/Officers	8,000
9620	Visits, regional seminars, workshops and conferences	
	EASSS Conference in Tanzania (8 Officers)	18,000
	ISSS meeting Japan P.F. Okoth and S.M. Wokabi	24,000
	Reserve for unforeseen conferences seminars etc	30,000