Soil and Water Conservation in Kenya
Bibliography with Annotations

by
Gichuki Karanja
and
Fissiha Tefera

Department of Agricultural Engineering
University of Nairobi

and

Swedish Agency for Research Cooperation with Developing Countries (SAREC)

1990

Dept. of Agricultural Engineering
Publication No. 90/1
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Numerous articles dealing with the problem of soil erosion and soil and water conservation in Kenya have been written since the early 1930's. These materials covering a wide range of topics, on research findings, personal experiences, field observations and studies, lie scattered in different public and private libraries in the country.

Mr. Fissiha Tefera, a former graduate student of the University of Nairobi, Department of Agricultural Engineering, prepared the first version of the bibliography, which included materials upto 1984. The current edition includes materials which have accumulated upto September 1989.

The bibliography is arranged alphabetically by author. Materials by the same author are arranged chronologically. It also contains subject and geographical indexes which makes it easier to look for references on a required topic. In order to help locate the materials, at least one location symbol is included for each entry. Most of the materials that have been documented by the Kenya Agricultural Documentation Centre (KADOC), of the Ministry of Agriculture, are included with the KADOC accession number and the full text is copied as it is, with very few minor alterations.

The bibliography contains references to some 700 articles of which about some 640 are annotated, for it was not possible to get access to all materials listed. I hope the bibliography will be a useful guide for future reference and research and it can help avoid unnecessary duplication of work.

Published and unpublished materials and consultancy reports since 1933 are covered in this bibliography. Soil and water conservation is a very broad field covering a very wide range of topics from different disciplines. The bibliography covers only the following subject matters:

- Erosion types, causes and distribution.
- Erosion survey, monitoring, prediction and soil loss estimation.
- Soil erodibility and soil physical parameters related to erosion such as infiltration, soil moisture, soil temperature, structure, aggregate stability, surface sealing, crusting etc.
- Rainfall erosivity and rainfall characteristics like intensity, kinetic energy, frequency, duration, seasonal distribution, reliability and prediction; that are related to soil erosion, flooding and conservation structures.
- Land degradation, denudation, desertification and the impact of erosion on the environment.
- Sedimentation and sediment monitoring in streams and reservoirs.
- Cultural methods of soil and water conservation such as rotation, mulches, plant residue, crop cover, tillage, ridging, contouring, strip cropping, grass strips, trash lines, etc.
- Structural methods of conservation such as cutoff drains, terraces, waterways, gully control structures, etc; their
design, layout, installations, maintenance, cost, tools and implements.
- Reclamation and revegetation of denuded lands.
- The use of grasses, shrubs and trees in erosion control and agroforestry.
- Policies and regulations in soil and water conservation.
- Education, research, training, extension and organization in soil and water conservation and the socio-economic impact of soil and water conservation.
- Water conservation in situ by land management practices and runoff harvesting for crop and pasture production (dams and complex structures that are used to store and conserve water or methods of reducing evaporation from large bodies of water or control of seepage are not covered).

In the course of preparing this bibliography, I have visited a number of institutions and I would like to thank the following for their cooperation and support they gave during my visits:

Soil and Water Conservation Branch, Agricultural Engineering Division, and Kenya Agricultural Documentation Centre, Ministry of Agriculture; Kenya Soil Survey, National Agricultural Laboratories, KARI; Kabete Campus and Main Campus libraries and the Institute for Development Studies of the University of Nairobi; Kenya National Archives; Department of Geography, Kenyatta University; Kenya Rangeland Ecological Monitoring Unit; Ministry of Water Development; National Environment and Human Settlement Secretariat; Permanent Presidential Commission on Soil Conservation and Afforestation; Settlement Division of the Ministry of Lands and Housing; the Soil and Desertification Sections of the United Nations Environment Programme; International Bank for Reconstruction and Development, Nairobi; International Council for Research in Agroforestry; Integrated Project in Arid Lands; United States Agency for International Development; Australian Council for International Agricultural Research; and Swedish International Development Authority.

I am especially grateful to Professor D.B. Thomas, of the Department of Agricultural Engineering, University of Nairobi, for his persistent advice and interest in the work and for access to the materials under his personal collections which served as an invaluable reference source. I also extend my thanks to Dr. Francis Gichuki of the same department for advising me on how best to construct the data entry fields, Mr. Peter Kibung’a of the National Council for Population and Development in helping me to write the index programmes, Dr. R.H.G. Bos and Mr. Moges Worku Bekele for standardizing the keywords and designing a system of indexing materials on soil and water conservation.

This bibliography may not contain all the materials written on soil and water conservation in Kenya. To make the bibliography comprehensive and up to date, I would be pleased if materials that
are not included in this volume or new articles are sent to the Chairman, Department of Agricultural Engineering, University of Nairobi, P.O. Box 30197, Nairobi, from whom further copies of the publication can be obtained. The data is also available on floppy disc and can be made available in this form to anyone interested.

Gichuki Karanja,
Nairobi, November 1989.
**ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
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<tbody>
<tr>
<td>AIHS</td>
<td>International Association of Hydrological Sciences</td>
</tr>
<tr>
<td>ARCN</td>
<td>Agricultural Research Centre Nigeria</td>
</tr>
<tr>
<td>ASALDP</td>
<td>Arid and Semi-arid Lands Development Programme</td>
</tr>
<tr>
<td>BPSAAP</td>
<td>Baringo Pilot Semi-arid Areas Project</td>
</tr>
<tr>
<td>CDES</td>
<td>Community Development and Education Service</td>
</tr>
<tr>
<td>ETMA</td>
<td>Environmental Training and Development in Africa</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agricultural Organization of the United Nations</td>
</tr>
<tr>
<td>GOK</td>
<td>Government of Kenya</td>
</tr>
<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>ICRAF</td>
<td>International Council for Research in Agroforestry</td>
</tr>
<tr>
<td>IDS</td>
<td>Institute for Development Studies</td>
</tr>
<tr>
<td>IFIAS</td>
<td>International Federation of Institutes for Advanced Study</td>
</tr>
<tr>
<td>IPAL</td>
<td>Integrated Project in Arid Lands</td>
</tr>
<tr>
<td>IRDC</td>
<td>International Rural Development Centre, Uppsala</td>
</tr>
<tr>
<td>ISCO</td>
<td>International Soil Conservation Organization</td>
</tr>
<tr>
<td>KADOC</td>
<td>Kenya Agricultural Documentation Centre</td>
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<tr>
<td>KARI</td>
<td>Kenya Agricultural Research Institute</td>
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<tr>
<td>KNAAS</td>
<td>Kenya National Academy for the Advancement of Agricultural Sciences</td>
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<tr>
<td>KREMU</td>
<td>Kenya Rangeland Ecological Monitoring Unit - now Ministry of Planning and National Development</td>
</tr>
<tr>
<td>KSS</td>
<td>Kenya Soil Survey</td>
</tr>
<tr>
<td>MOA</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>NCCK</td>
<td>National Council of Churches of Kenya</td>
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<tr>
<td>NDFRS</td>
<td>National Dryland farming Research Station</td>
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<tr>
<td>NEHSS</td>
<td>National Environment and Human Settlement Secretariat</td>
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<tr>
<td>PPCSCA</td>
<td>Permanent Presidential Commission on Soil Conservation and Afforestation</td>
</tr>
<tr>
<td>SECID</td>
<td>South East Consortium for International Development</td>
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<tr>
<td>SIDA</td>
<td>Swedish International Development Authority</td>
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<tr>
<td>SUAS</td>
<td>Swedish University of Agricultural Sciences</td>
</tr>
<tr>
<td>TARDA</td>
<td>Tana and Athi Rivers Development Authority</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<tr>
<td>UNSO</td>
<td>United Nations Sudano-Sahelian Organization</td>
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<tr>
<td>UON</td>
<td>University of Nairobi</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
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</tbody>
</table>
LOCATION SYMBOLS

All the institutions listed are located in Nairobi city, with the exception of KARI library at Muguga, Moi University at Eldoret, and Laikipia Research Project at Nanyuki.

ACIAR  Australian Council for International Agricultural Research
DAE  Department of Agricultural Engineering, University of Nairobi
ASAL  Arid and Semi-arid Lands Development Branch, MOA
DBT  The collection of D.B. Thomas
DGKU  Department of Geography, Kenyatta University
ICRAF  International Council for Research in Agroforestry
IPAL  Integrated Project in Arid Lands
KAB  Kabete Campus Library, University of Nairobi
KADOC  Kenya Agricultural Documentation Centre
KARI  Kenya Agricultural Research Institute
KNA  Kenya National Archives
KREM  Kenya Rangeland Ecological Monitoring Unit
KSS  Kenya Soil Survey
LDD  Land Development Division, MOA
LRP  Laikipia research Project
MAL  Ministry of Agriculture Library
MCL  Main Campus Library, University of Nairobi
MOIU  Moi University Library
NAL  National Agricultural Laboratories
NES  National Environment and Human Settlement Secretariat
PER  From Author
PPC  Permanent Presidential Commission for Soil Conservation and Afforestation
SD  Settlement Division, Ministry of Lands and Housing
SSD  Soil Science Department, University of Nairobi
SWCB  Soil and Water Conservation Branch, Ministry of Agriculture
UNEP  Desertification and Soil Sections of UNEP
UNESCO  United Nations Educational, Scientific and Cultural Organization
USAID  Agricultural Section, USAID
LIST OF PERIODICALS

Agric. Dev. Pap. (FAO)-----------------Agricultural Development Paper of the FAO


E. Afr. Agric. For. J.------------------East African Agricultural and Forestry Journal (1960-)


E. Afr. Stand.------------------East African Standard

Emp. J. Exp. Agric.----------------Empire Journal of Experimental Agriculture (1933-)

Gegr. Annlr.-----------------Geografiska Annaler (Stockholm)

Geogr. J.-------------------Geographical Journal (London, 1893-


Kenya Fmr.-------------------Kenya Farmer (1956-)


Sols Afr.-------------------Sols Africains. (Paris 1951-)

Trop. Agric., Trin.-----------------Tropical Agriculture, Trinidad (1924-)

Z. Geomorph. Suppl. Bd.----------------Zeitschrift fur Geomorphologie, Suppliment (Leipzig)

Source:- WORLD LIST OF SCIENTIFIC PERIODICALS. 1965


London, Butterworths.
**EXAMPLE OF FORMAT**

<table>
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<tr>
<td>61.</td>
<td>BRAUN, H.M.H.</td>
<td>1986</td>
<td>ACIAR</td>
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**E** SEASONAL DISTRIBUTION OF RAINFALL IN KENYA


**G** 10 pp., 5 figs., 2 tables, 8 refs.

Paper argues that monthly rainfall expressed as a percentage of annual rainfall is a useful parameter for comparing the rainfall distribution of stations which differ considerably in average annual rainfall.

**J** Rainfall distribution

A Item number  
B Author  
C Year of publication  
D Location symbol  
E Title of the entry  
F Journal or report in which the item is found  
G Details of the study  
H Annotations  
J Keywords to be found in the index
ACKZELL, L. 1985

EVALUATION OF A KENYA SOIL CONSERVATION TREE NURSERY AND ITS PRACTICAL RESULTS IN FARMS

Report from a minor research task.

SUAS, IRDC Working Paper No. 30

36 pp., 2 figs., 7 tables, 3 photos, 3 appendices

This report is an evaluation of a tree nursery in Machakos district, sponsored by SIDA soil conservation in Kenya. The paper examines the administration of the nursery, its production and distribution of trees, as well as its economic situation. The paper also looks at the tree performances and their contribution to soil conservation.

Machakos District/Nurseries/Management practices

ADAMSON, C.M., MELVILLE, I.R., KARIUKI, G.T. 1983 IDS

AN INTEGRATED APPROACH TO LAND DEVELOPMENT AND SOIL CONSERVATION IN AGRICULTURAL SETTLEMENT PROJECTS - THE MAGARINI EXPERIENCE

IDS Occasional Paper No. 42, pp. 220-234

2 tables, 5 refs.

The paper describes the climate, runoff, land form, soils, vegetation, soil erosion, land development planning and soil conservation (design, maintenance, research and conservation farming) experience of the Magarini Settlement Project at Malindi, Coast Province.

Kilifi District/Coast Province/Physiographical parameters/Design/Policies

ADAMSON, C.M., MELVILLE, I.R., KARIUKI, G.T., & CHECK, P.M.O. 1983 DBT

THE USE OF MECHANICAL SOIL CONSERVATION WORKS - MAGARINI SETTLEMENT PROJECT

Paper presented at a technical meeting on soil conservation, Ministry of Agriculture, Nairobi, 14 January, 1983

7 pp., 5 refs.

The paper briefly describes the area, climate and farming system of the settlement. It gives meteorological summary for 1978-1981, land form, soils, vegetation and the interrelationship of physical environment with soil erosion. Soil conservation back channels are described in relation to their spacing, length per plot and the waterways, where possible combined with water harvesting system to store runoff for dry season. Gives design criteria for banks and earthwork.

Kilifi District/Design/Structural methods/Water harvesting
4 AGUMBA, F.O. 1985

FLUCTUATIONS OF LONG RAINS IN KENYA IN RELATION TO LARGE SCALE CIRCULATIONS

Kenya Meteorological Department Research Report No. 1/85
27 pp.

(not available for annotation)

Rainfall characteristics

5 AGUMBA, F.O. 1989

REGIONAL HOMOGENEITY OF THE LONG RAINS IN KENYA

(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O.
DAE, SIDA
5 figs., 2 tables, 13 refs.

Paper presents the findings of a study carried out to determine and understand the distribution of long rains into homogeneous regions. Used the empirical orthogonal functions analysis method to divide the country into groups of homogeneous long-rains distribution. Paper identifies and shows on a map six regional groups.

Rainfall distribution

6 AHN, P.M. 1975

EROSION HAZARD AND FARMING SYSTEMS IN EAST AFRICA

Chichester, UK; John Wiley and Sons
2 tables, 40 refs.

Deals with rainfall erosivity, soil erodibility and farming systems in East Africa in relation to erosion hazard. Covers Kenya, Uganda and Tanzania.

Soil erodibility/Rainfall characteristics/Farming systems research
7 AHN, P.M. 1976

MICROAGGREGATION IN TROPICAL SOILS: ITS MEASUREMENT AND EFFECTS ON THE MAINTAINANCE OF SOIL PRODUCTIVITY

Technical Communication - UoN, Department of Soil Science, No. 9. 12 pp., 4 tables, 25 refs.

Results and discussion of mechanical analysis to measure microaggregation in a Kikuyu friable soil from Ruiru and three ferrallitic soils from Ghana and its implication in soil productivity.

Soil types/Aggregates/Soil productivity

8 ALEXANDER GIBB AND PARTNERS-AFRICA 1959 TARDA

UPPER TANA CATCHMENT WATER RESOURCES SURVEY

161 pp., 29 figs., 67 tables, 16 plates, 4 appendices.

Study divided into two parts. Part I comprises chapters 1-5, which deal with the general description of the Upper Tana Catchment, climate, hydrology, vegetation and soils. Appendix 3 gives a general description of the soils in the catchment.

Water resources

9 ALFREDSSON, E., LARSSON, H., ODIN, M. FRIDSTRAND, K. 1988 DBT

DAM PROTECTION ON GRAZING LAND IN KWALE DISTRICT KENYA
A Minor Field Study

SUAS, IRDC Working Paper No. 97:1
102 pp., 82 figs. 20 refs.

The report documents the dam catchments areas of high erosion hazard and proposes various soil conservation measures to prevent the dam from sedimentation. The study is based on the interpretation of aerial photographs from 1955 to 1970, and a satellite image from 1987.

Kwale District/Soil and water conservation/Dams/Sedimentation/Overgrazing
10  ALI, A.M. 1985  
AN ASSESSMENT OF SOIL CONDITIONS IN THE PROPOSED EXTENSION OF LAKE KENYATTA SETTLEMENT SCHEME  

55 pp., 1 fig., 7 tables, 25 refs., 2 appendices.  
Describes location, communication, climate, geology, geomorphology, hydrology, water problem and quality, vegetation and present land use in the area. The survey methods used and the general characteristics of the soil are discussed in detail. Lists several recommendations for soil conservation in the area.  

Kilifi District/Survey/Chemical properties/Physical properties/Soil and water conservation  

11  AMUYUNZU, C.L. 1989  
SOIL LOSS AND DESERTIFICATION IN NORTHERN KENYA - A STUDY IN MARSABIT DISTRICT  

(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O.  
DAE, SIDA  
2 figs., 1 ref.  
Paper analyses the factors that contribute to land deterioration in northern Kenya, especially at Rendille territory where the study is based. States that restriction of nomadic people into small areas due to inter tribal conflicts, high human and livestock population, the influence of missionaries and modern institutions, droughts, and nomads turning into sedentary farmers, are among the factors causing land deterioration.  

Marsabit District/Soil and land degradation/Overgrazing/Land degradation  

12  ANDERSON, K.V. 1986  
A SOIL EROSION DATA BASE FOR THE LAKE BASIN REGION, KENYA  

The design requirements of a soil erosion data base for the Lake Basin region, Kenya, and methods of constructing such a data base are discussed. One method, the use of Universal Soil Loss Equation (USLE), is considered in detail. Argues that USLE needs to be adapted for Kenyan conditions before it can be used with confidence. The feasibility of using local materials and teams to fulfill USLE's research needs is assessed through a case study in the region.  

Kisumu District/Siaya District/USLE
ANYIENI, Z.M. 1989

THE ROLE OF THE PERMANENT PRESIDENTIAL COMMISSION ON SOIL CONSERVATION AND AFFORESTATION IN KENYA


DAE, SIDA

Paper gives broad terms of reference and the structure of the Commission. Discusses the Commission’s approach to environmental problems, and the conservation plans that the Commission expects to spearhead. Also gives the role of higher institutions and elites in conservation work.

GoK/Soil and water conservation

ANYIENI, Z.M. 1989

KEYNOTE ADDRESS BY THE CHAIRMAN, PERMANENT PRESIDENTIAL COMMISSION ON SOIL CONSERVATION AND AFFORESTATION TO THE PARTICIPANTS OF THE WATER CONSERVATION SEMINAR AT NANYUKI, 7-11 AUGUST 1989.

16 pp.

Paper addresses itself to the challenges of environmental conservation for increased and sustained productivity. Analyses the state of soils, forests, water, the impact of toxic and hazardous wastes, and wildlife and habitat conservation. Gives the broad terms of reference, the structure, and specific functions of the commission.

GoK/Soil and water conservation

ANYONA, A.N. 1982

INVESTIGATIONS INTO PROBLEMS EMANATING FROM ROAD DRAINAGE WITH SUGGESTED METHODOLOGY FOR PREVENTION IN MURANG’A AND BARINGO DISTRICTS

Post-graduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering 67pp
17 figs. 8 tables, 20 refs.

Reports some of the problems of soil erosion associated with road design, construction and drainage, in Murang’a and Baringo Districts. Also gives some recommendations on control and future prevention methods.

Baringo District/Murang’a District/Soil and water conservation/Physical infrastructures
16  ASAL 1985/86 1986

QUARTERLY EVALUATION REPORTS - ARID AND SEMI-ARID LANDS PROJECTS
KITUI


(not available for annotation)

Kitui District/Soil and water conservation

17  ASE, L.E. 1978

PRELIMINARY REPORT ON STUDIES OF SHORE DISPLACEMENT AT THE SOUTHERN
COAST OF KENYA

Geogr. Annlr. - 60A (3-4) pp. 209-221
11 figs. 3 tables, 17 refs. 6 plates

Reports a study of shore displacement along the coast of Kenya by
means of levelling of raised beaches, terraces, caves, stakes and
cliffs. Found no trend indicative of an uneven shore displacement.

Coast Province/Related literature

18  AUBRY, B. WAHOME, E.K. 1983

FIELD EXPERIMENTS ON SOIL EROSION IN AMBOSELI, KAJIADO DISTRICT

In: Soil and Water Conservation in Kenya. Thomas, D.B. & Senga,
W.M. (Eds)
Proceedings of a Second National Workshop Nairobi, March 10-13, 1982
IDS Occasional Paper No. 42 pp.65-78
4 figs. 11 refs.

Paper describes a new portable rainfall simulator used in the Ambos­
eli area, Kajiado District, to test the spatial variation in infil-
tration rates and effects of vegetation cover, surface texture and
rilling on soil loss on a single gradient and soil type.

Kajiado District/Amboseli National Park/Rainfall simulation/Vegetat-
/Infiltration
BAGOORA, F.D.K. 1989 DAE, SIDA

A PRELIMINARY INVESTIGATION INTO THE CONSEQUENCES OF INADEQUATE CONSERVATION POLICIES ON THE STEEP SLOPES OF THE RUKIGA HIGHLANDS SOUTH-WESTERN UGANDA

DAE, SIDA
1 fig., 1 table, 10 refs.

Paper is a preliminary case study of the geomorphological and socio-economic effects on the steep slopes of the Rukiga Highland in south-western Uganda. Observes that the problem has been dominated by vegetation denudation and cultivation of extremely sensitive slopes, causing extensive damage of arable land by both incipient erosion and mass wasting. Explains why the highlands residents had attained high conservation standards which later declined dismally.

South-western Uganda/Soil and water conservation/Causes

BAKE, G. 1983 ICRAF

WATER RESOURCES AND WATER MANAGEMENT IN SOUTH-WESTERN MARSABIT DISTRICT

116 pp., 27 figs., 18 tables, 22 refs., 3 appendices.

Study analyses the traditional forms of water use and the physical factors affecting the hydrology of the area. Discusses in details the drainage, infiltration and runoff, surface water, sub-surface water, determination of maximum water supply from a well, water consumption and the spatial distribution of water needs. Also discusses the management of water resources and precautions against drought, and water management policy.

Marsabit District/Wells/Management practices/Survey

BAKER, P.R., KINYANJUI, D.N  IPAL

DRAFT UNSO PAPER

46 pp.

States the problems of desertification in Kenya, and the need to combat and monitor it. Provides and defines the role and objectives of the National Environment Secretariat, priorities for action, the structure for environmental management and functions of committees.

GoK/Soil and land degradation
22 BAKHTRI, M.N., GOVATTI, S., ODHIAMBO, S., NGULUU, S. 1982 ACIAR

FARMING SYSTEMS RESEARCH AT THE NDFRS KATUMANI (WITH SPECIAL REFERENCE TO SEMI-ARID AREAS OF THE EASTERN PROVINCE OF KENYA)

MOA, UNDP, FAO
65 pp., 2 figs., 14 tables, 18 refs.

Chapter 2 has a description of the environment, land use, soils and the farming population of the area. Chapter 3 describes the problems facing the farmers, which include rainfall scarcity, intensive soil erosion, and low level of organic matter and low fertility.

Machakos District/Katumani/Farming systems research

23 BARBER, R.G. 1979 KSS

THE INFLUENCE OF POLYVINYL ACETATE AND POLYVINYL ALCOHOL ON RUNOFF AND SOIL LOSS FROM A HIGHLY ERODIBLE SOIL FROM THE SEMI ARID AREAS OF KENYA

E. Afri. Agric. For. J. 44(2):122-125
1 table, 13 refs.

Presents the effect of polyvinyl acetate (PVAc) and polyvinyl alcohol (PVA) soil conditioners on soil loss and runoff. Using 47-48 mm/hr for 45 min. simulated storm found a surface application of 1% at 1 l/m2 produced the greatest reduction in runoff (97%) and soil loss (84%). Expense the main drawback.

Rainfall simulation/Chemical treatment/Prediction

24 BARBER, R.G. 1980 MAL, NAL

THE EFFECT OF DIFFERENT MANAGEMENT PRACTICES IN REDUCING SOIL EROSION AND RUNOFF FROM A HUMIC NITISOL


Article deals with the influence of crop cover, mulch rate and polyvinyl acetate (soil conditioner) in reducing soil loss and runoff on a freshly cultivated humic Nitosol at Kabete.

Nairobi District/Kabete/Mulching/Nitosols/Crop vegetation cover
THE MAGNITUDE AND SOURCES OF SOIL EROSION IN SOME HUMID AND SEMIARID PARTS OF KENYA AND THE SIGNIFICANCE OF SOIL LOSS TOLERANCE VALUES IN SOIL CONSERVATION IN KENYA

6 figs. 6 tables, 33 refs.

Assesses the magnitude of soil erosion in Kenya. It gives soil loss values for different sources of erosion and sediment yield and estimates of soil formation rates and tolerable rates for the humid and semi-arid areas of Kenya. It also lists possible approaches for reducing soil erosion rates.

Nairobi District/Kabete/Soil loss tolerance/Measurements/Soil and water conservation

THE ERODIBILITY OF TWO SOILS FROM KENYA

J. Soil Sci. 30(3):579-591
KADOC NO. 40175
4 figs., 5 tables, 21 refs., 2 plates

The experiment compares the soil loss and runoff rates from freshly dug Luvisols of Katumani Research Station and Nitosols of Kabete Field Station on a 6 degree slope at different rainfall intensities using a portable rainfall simulator. Also includes data and discussion on susceptibility to erosion of these soils.

Nairobi District/Machakos District/Run-off plots/Rainfall simulation/

MEASUREMENT OF SOIL LOSS AND RUNOFF FROM SIMULATED RAIN STORMS AT KABETE, KATUMANI AND IIUNI

18 pp., 1 fig., 5 tables, 12 refs., 2 appendices

Discusses results of applying varying intensity storms to a freshly ploughed luvisol at Katumani, freshly ploughed Nitosol at Kabete, and from three soils with different grass covers on grazing land at IIuni. Gives rapid surface sealing as the reason why erosion is high on overgrazed areas.

Nairobi District/Machakos District/Rainfall simulation/Sealing and crusting/Vegetation cover
INfiltration, Surface Runoff and Soil Loss From High Intensity Simulated Rainfall in Kenya

Faculty of Agriculture, University of Nairobi.
157 pp., 17 figs., 22 tables, 40 refs., 8 plates.

Reports measurements of soil losses, volume and rate of runoff of five freshly cultivated soils and seven grazing lands under 25, 50, 75 and 100 mm/hr simulated storms of one hour duration. The report also assesses the magnitude and significance of the erosion and runoff from cropland and grazing land, effects of maize and bean crop covers, mulches and polyvinyl acetate and the feasibility of using PVAc soil conditioner as conservation measure.

Rainfall simulation/Vegetation cover/Mulching/Chemical treatment

Studies on Soil Erosion and Runoff and Proposed Design Procedures for Terraces in Cultivated Semi-arid Areas of Machakos, Kenya

Wiley and Sons, Chichester, pp. 219-237
4 figs., 4 tables, 35 refs.

Gives soil and runoff losses from cultivated lands of semi-arid area in Machakos District, under simulated rainfall of 25, 50 and 100 mm/hr. More soil loss from Luvisol than from Nitosol. Also presents a nomograph for the design of steep backslope terraces to hold all runoff based on minimum infiltration rate, maximum rainfall expected in one hour for chosen frequency, terrace spacing and slope.

Machakos District/Rainfall simulation/Nitosols/Design/Luvisols

BARBER, R.G., VAN EJNSBEREN, A.C. 1981
A Proposed Model to Predict the Development of Level Bench Terraces From Steep Backslope Terraces

4 figs., 8 refs.

Proposes a model for predicting changes from steep backslope terraces to level bench terraces through natural processes of erosion and normal tillage practices, based on the Universal Soil Loss Equation (USLE).

USLE/Terraces
SPATIAL PATTERNS OF DAILY RAINFALL IN CENTRAL KENYA: APPLICATION OF PRINCIPAL COMPONENT ANALYSIS, COMMON FACTOR ANALYSIS AND SPATIAL CORRELATION.  
In: J. of Climatology 7:267-289.  
9 figs., 2 tables, 58 refs.  

can be revealed by applying principal component analysis (PCA) and common factor analysis (CFA) to daily rainfall data (or data accumulated over some other period); and to analyse the spatial correlation patterns in the study.

BARRING, L. 1988  
ASPECTS OF DAILY RAINFALL CLIMATE RELEVANT TO SOIL EROSION IN KENYA  
Rappoter Och Notiser 70  
Department of Physical Geography, University of Lund, Sweden.  
(not available for annotation)  

BARRING, L. 1988  
REGIONALIZATION OF DAILY RAINFALL IN KENYA BY MEANS OF COMMON FACTOR ANALYSIS.  
In: J. of Climatology 8:371-389  
10 figs., 4 tables, 51 refs.  

can be designed to map a regionalization of daily rainfall in Kenya by means of a common factor analysis (CFA). In this study maximum likelihood factor analysis (MLFA) has been chosen as a tool for producing a regionalization of Kenya based on daily rainfall totals. Contains a description of the data selection procedure used for the study and a general discussion of data quality and representativity. Also presents statistical procedures.

SPATIAL PATTERNS OF DAILY RAINFALL IN CENTRAL KENYA: APPLICATION OF PRINCIPAL COMPONENT ANALYSIS, COMMON FACTOR ANALYSIS AND SPATIAL CORRELATION.  
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32 BARRING, L. 1988  
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33 BARRING, L. 1988  
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BARROW, E.G.C. 1983

USE OF MICROCATCHMENTS FOR TREE PLANTING IN SOIL CONSERVATION FOR SEMI-ARID AREAS

1 fig., 1 table, 17 refs.

Deals with the use of microcatchments for tree planting and reducing soil erosion by holding runoff within the microcatchment in the semi-arid area of Ninyang Division, Baringo District. Also lists 13 tree species that showed success in the trials.

Baringo District/Revegetation/Micro-catchments

BARROW, E.G.C. 1984

NORAD’S INVOLVEMENT IN THE FORESTRY SECTOR OF TURKANA DISTRICT; PAST WORK AND FUTURE PROSPECTS.

Forest Department, Lodwar, Kenya.
23 pp.

(not available for annotation)

Turkana District/Agroforestry

BARROW, E.G.C. 1986

FORESTRY HANDBOOK FOR PRIMARY SCHOOL TEACHERS IN TURKANA DISTRICT

Forestry Department and Turkana Teaching Resource Centre 100 pp., 37 photos, 5 refs.

The school teaching handbook identifies all species of trees found in Turkana district and their respective uses to induce the local population to conserve trees.

Turkana District/Multi-purpose trees
THE VALUE OF TRADITIONAL KNOWLEDGE IN PRESENT-DAY SOIL CONSERVATION PRACTICE: THE EXAMPLE OF WEST POKOT AND TURKANA


This paper attempts to highlight some of the traditional values that the Pokot and Turkana people have which could be of intrinsic value to soil and water conservation if used sensibly in the dry areas. It further attempts to identify methods of incorporating such traditional values in soil and water conservation practice for arid and semi-arid lands. Discusses such aspects as range management, land use strategies and woody species management in relation to soil conservation.

West Pokot District/Turkana District/Socio-economic aspects/Soil and water conservation

SOIL EROSION

Colony and Protectorate of Kenya, Department of Agriculture. Bulletin No. 1
Government Printer
78 pp., 10 figs., 6 tables, 29 refs., 3 plates

A paper dealing with factors affecting erosion, types of erosion, effects of erosion and conservation measures such as control and reclamation of gulleys, contour farming (hedging), strip cropping, mulching and terracing. Gives examples of particular soil conservation measures in practice under coffee, tea and cereal cultivation.

Causes/Land degradation/Terraces/Management practices

ASPECTS OF FAO’S ACTIVITIES IN PROMOTING SOIL CONSERVATION


Paper discusses the issues that need be considered in formulating a successful soil conservation programme to raise land productivity. Issues include the involvement of land users, direct short-term benefits to the farmers, land tenure systems, practical and appropriate techniques, use of proper conservation incentives, and willingness to adopt long-term programmes and policies. Provides a general model on erosion-yield relationship.

Policies/Soil productivity
PLANNING AND ENVIRONMENTAL RISK IN KENYA DRYLANDS

Geogr. Rev. 75:58-70
1 fig., 1 table.

Paper argues that the continued migration of people from the highlands to the arid and semi-arid areas of Kenya has caused concern about the ability to support an ever increasing population. Further argues that an examination of strategies for planning and development concludes that life in Kenya drylands is becoming more, not less, risky inspite of the efforts by the government to mitigate the situation.

Policies

SOIL CONSERVATION PRINCIPLES AND PRACTICES BASED ON KENYA'S SOIL CONSERVATION EXPERIENCE

(unpublished manuscript)
203 pp., 103 figs., 27 tables, 16 refs.

Booklet discusses soil conservation principles and practices based on Kenya's experience so as to expose the country's soil conservation specialists with more technical information. It addresses itself to issues pertaining to soil formation, nature and susceptibility to soil erosion, types of erosion, wind erosion, prediction of soil loss due to soil erosion, conservation measures, and the general principles and practices of soil conservation.

SOIL and land degradation/Soil and water conservation/Soil erodibility/

GULLY DEVELOPMENT AND CONTROL, LAND USE AND FARM PLANNING

Ministry of Agriculture and Livestock Development
figs, tables, maps.

Study was prepared to provide guidelines for training soil and water conservation officers of the Ministry of Agriculture and Livestock Development. Looks at the origin, development and impact of gullies. Gives details on how to control gully erosion specifying the structures and how to construct and maintain them. Also evaluates the capability of the land.

Training/Extension/Gully erosion/Gully control
BIAMAH, E.K. 1987

PERSONNAL NOTES ON RAINWATER HARVESTING TECHNIQUES IN CENTRAL BARINGO, KENYA

(not available for annotation)

Baringo District/Water harvesting

BIAMAH, E.K. 1987

LESSONS LEARNT FROM ARID AND SEMI ARID LANDS DEVELOPMENT PROJECTS IN KENYA

29 pp., 9 refs.

Paper discusses the need for effective and realistic project planning, implementation, management and evaluation of development projects in order to overcome the challenges of identifying feasible agricultural development projects in the ASAL areas. Examines issues on short term vs long term planning; economic efficiency vs welfare considerations and the choice of technology; management of a fragile ecology; inter-disciplinary coordination and the management of technical assistance in relation to local knowledge.

Policies

BIAMAH, E.K. 1988

ENVIRONMENTAL DEGRADATION AND REHABILITATION IN CENTRAL BARINGO, KENYA

ISCO and Land Development Department, Thailand
32 pp., 9 figs., 7 tables, 23 refs.

Study looks at the current environmental degradation and rehabilitation within Njemps Flats and Tugen Plateau areas of Central Baringo. An attempt is made to assess the environmental impact of a Fuelwood and Fodder Production Project operating within the two areas. Gives details of the environmental conditions of the study area. Also outlines the scope and method of the study.

Baringo District/Reclamation/Soil and land degradation
EVALUATION OF FEASIBLE CONSERVATION STRATEGIES FOR THE SMALLHOLDER FARMER IN SUB-SAHARAN AFRICA: CASE STUDIES FROM MALAWI AND KENYA


Paper argues that, due to increasing land deterioration, there is a need to formulate new conservation strategies which would be area specific and technically effective and also consider local environmental conditions. Points out that the strategies must offer short-term benefits through increased crop yields, fuelwood, and fodder production. Further argues that an adaptive research approach based on the integration of on station, on farm trials and local knowledge could be a suitable intervention to smallholders.

Policies

WATER HARVESTING AND CONSERVATION: TECHNIQUES FOR INCREASED CROP AND FODDER PRODUCTION IN ARID AND SEMI-ARID AREAS OF KENYA


Paper evaluates existing water harvesting and conservation technologies and explores the potential for developing effective and sustainable runoff water harvesting techniques for arid and semi-arid lands. Analyses water harvesting structures, water conservation and utilization techniques, and the requirements for designing effective water harvesting and conservation system for ASAL. Presents a case study on runoff water harvesting and conservation experiences in Central Baringo.

Baringo District/Water harvesting

TECHNICAL AND SOCIO-ECONOMIC CONSIDERATIONS IN REHABILITATING AND CONSERVING AN ERODED/DENUDED CATCHMENT: A CASE STUDY OF THE CHEMERON CATCHMENT AREA IN CENTRAL BARINGO


DAE, SIDA

3 figs., 3 refs.

The paper analyses the technical and socio-economic considerations in rehabilitating and conserving the Chemeron catchment area in Baringo District focusing causes, status, and long term impacts of soil erosion in the area. Classifies and assesses soil erosion in the district stating the type of human activity and type of erosion prevalent in each class. Gives general background information on the Chemeron catchment area.
Soil and water conservation

BIAMAH, E.K. (Ed) 1985

PROCEEDINGS OF A SOIL CONSERVATION WORKSHOP ON GRAZING LANDS, 9-12 APRIL, 1985, NAIROBI.

Ministry of Agriculture and Livestock Development
171 pp., 10 figs, 33 refs.

This is an executive summary of a workshop convened by the soil and water conservation division of the Ministry of Agriculture to discuss soil conservation in grazing lands on realizing that there was lack of proven conservation technology for grazing lands; technical and policy co-ordination of the bodies involved in conservation; effective extension efforts in grazing lands. Gives some recommendations.

Soil and water conservation

BIAMAH, E.K., NYAGA, C.R.J. 1985

PROPOSED INTEGRATION, REHABILITATION AND CONSERVATION PROGRAMME OF THE CHEMERON CATCHMENT AREA OF BARINGO (CENTRAL) DISTRICT

(Not available for annotation)

Cheameron/Baringo District/Reclamation/Soil and water conservation

BLACKIE, J.R. 1972

HYDROLOGICAL ASPECTS OF CHANGE IN LAND USE FROM RAIN FORESTS TO THE PLANTATION IN KENYA

IAHS/UNESCO Studies Reports. Hydrology No. 12 pp 313-329

(Not available for annotation)

Management practices/Land use
HYDROLOGICAL RESEARCH IN EAST AFRICA

BLACKIE, J.R., EDWARDS, K.A., CLARK, R.T. (Eds) 1979 MAL


Discusses results of 18 years observation with the various aspects of the hydrological cycle. Concludes no long term reduction in water yield if land use changes from forest to tea.

Management practices/Land use

BOBOTTI, O.K. 1989 DAE

TANA RIVER BASIN WATER CONSERVATION - TARDA EXPERIENCE

3pp., 1 map.

Paper states that TARDA recognizes the on-farm water and soil conservation and on-river channel water storage components of water conservation. Describes the two components, their benefits, and future challenges of the programme. Lists the objectives of the on-river development of water conservation at Masinga and Kiambere dams.

Lower Tana Basin/Soil and water conservation/Dams

BOGDAN, A.V., PRATT, D.J. 1967 MAL

RESEEDING DENUDED PASTORAL LAND IN KENYA 48pp.

Government Printer, Nairobi
12 figs. 5 tables, 10 plates

Deals with methods of reclaiming denuded grass lands by reseeding, seed bed preparation and supplementary seed protection. Also gives list of recommended grass species.

Reseeding
SUMMARY OF INTERIM REPORT, CENTRAL BARINGO, KENYA

(not available for annotation)

Baringo District

BRABBEN, T.E. 1979

SEDIMENTATION IN RESERVOIRS: PROPOSALS FOR THE FIELD MEASUREMENT OF SEDIMENT DISCHARGE AND RESERVOIR SURVEYS IN THE UPPER TANA BASIN, KENYA

Research Proposal ODM 3/4
20 pp., 8 figs., 1 table.

Proposal to carry out field measurements of sediment discharge at certain points on the Upper Tana River, and to carry out surveys of selected reservoirs within the same region, so as to provide a methodology for the regular monitoring and measurement of sediment transport and deposition, identify areas of excessive sediment yield, obtain information on the depletion of storage capacity within the Tana River reservoirs.

Upper Tana River/Measurements/Sedimentation/Dams

BRADLEY, P.N., NGUGI, A.W. 1986

AGROFORESTRY, SOIL CONSERVATION AND WOODFUEL IN MURANG’A DISTRICT
PART II
FARM TYPOLOGIES AND FARM PROFILES FROM FIVE SUBREGIONS OF MURANG’A DISTRICT

Kenya Woodfuel Development Programme
67 pp., 3 figs., 20 tables, 8 refs.

Study uses correlation analysis principal component analysis, numerical classification, discriminant analysis and air-photo data, to generate data for the analysis of farm characteristics for the purposes of agroforestry and soil management in Murang’a District.

Murang’a District/Agroforestry/Survey/Management practices
BRAUN, H.M.H. 1977

AVERAGE MONTHLY RAINFALL AS A PERCENTAGE OF THE ANNUAL IN KENYA AND TANZANIA, WITH PARTICULAR REFERENCE TO THE KENYA COAST
KADOC NO. 10212

8 pp., graphs, 6 refs.

Studies rainfall distribution from Northern Kenya to Southern Tanzania and from Western to Eastern Kenya, with special reference to the Coastal Strip.

Rainfall distribution

BRAUN, H.M.H. 1977

SEASONAL AND MONTHLY RAINFALL PROBABILITY TABLES FOR THE EAST-CENTRAL, NORTH-WESTERN AND COAST REGIONS OF KENYA
KADOC NO. 10211

Kenya Soil Survey, Miscellaneous Paper No. M14
21pp. 17 tables, graph, 24 refs.

Data on rainfall and evaporation per season in the three areas are given and discussed.

Rainfall distribution

BRAUN, H.M.H. 1977

THE RELIABILITY OF THE RAINY SEASON IN MACHAKOS AND KITUI DISTRICTS
KADOC NO. 10210

Kenya Soil Survey, Miscellaneous Paper No. M12
18 pp., 4 tables, 4 graphs, 8 fold maps (1:1,000,000), 11 refs.

Studies seasonal rainfall and its probability, seasonal evaporation, crop water requirements, ratio of rainfall to potential evaporation and climatic zoning.

Machakos District/Kitui District/Rainfall distribution
BRAUN, H.M.H. 1986

SEASONAL DISTRIBUTION OF RAINFALL IN KENYA

10 pp., 5 figs., 2 tables, 8 refs.

Paper argues that monthly rainfall expressed as a percentage of annual rainfall is a useful parameter for comparing the rainfall distribution of stations which differ considerably in average annual rainfall.

Rainfall distribution

BRAUN, H.M.H., MUCHENA, F.N. 1978

THE KENYA SOIL SURVEY AND SOIL CONSERVATION

In Soil and Water Conservation in Kenya. Proceedings of a Workshop held at the University of Nairobi, Faculty of Agriculture, 21-23 Sept., 1977. IDS Occasional Paper No. 27. pp. 11-24
7 refs.

Describes the major activities of the Kenya Soil Survey and in particular the soil erosion hazard map. Gives a long list of (95) publications of the Kenya Soil Survey.

Survey

BROOK, T.R. 1952

SOIL AND WATER CONSERVATION IN SISAL: EXPLANATION OF THE COORDINATION OF METHODS OF CONTOUR PLANTING AND RAIL HAULAGE, KENYA

E. Afr. Agric. J. 18: 78-83
3 figs.

Explains the use of contour planting and contour grass strips on sisal plantations to reduce soil erosion, and gives examples of conservation layout.

Contouring/Layout/Grass strips
64 BROOK, T.R. 1955
SOIL AND WATER CONSERVATION
A short article recommending the use of mulching and narrow based terraces, and warns the damage that can be caused by the improper layout of the terraces and gives two examples of failures and estimates soil losses of Ruiru and Kiambu estates.
Kiambu District/Mulching/Terraces/Layout/USLE

65 BROOK, T.R., ROBINSON, J.B.D. 1959
CAMBER BED CULTIVATION OF GROUND WATER (VLEI) SOILS II. MODIFICATION OF THE SYSTEM
1 fig. 1 table, 6 plates
An experimental report dealing with methods of safely discharging runoff from camber beds of vlei soils and describes methods of layout and bed preparation, ploughing and ripping, bed shaping.
Soil types/Management practices/Design/Layout

66 BROWN, L. 1979
EROSION
In Turkwell Gorge Multipurpose Project. Socio Economic and Ecology Feasibility Study by Norconsult. Chapter 5 pp. 77-81
A short article discussing the present erosion in the Turkwell catchment. Assesses the erosion taking place on both crop land and grazing land and gives rating based on aerial photo analysis, vegetation map and air inspection. Recommends some measures of reconditioning the catchment. Lists eight grass species that can be used in reseeding.
Turkwell/Survey/Reseeding/Reclamation
BRYAN, R., BOWYER-BOWER, T. 1986 SIDA

SOIL EROSION PROCESSES AND DEVELOPMENT OF SEMI-ARID EPHEMERAL DRAINAGE BASINS AT BARINGO DISTRICT KENYA

University of Toronto, Canada
21 pp., 41 refs.

A proposal for a research programme to develop methodologies suitable for areas where quantitative data is not available. Project aims to look at: soil erodibility and degradation; relationship of topography to soil erosion; relationship between sheet and channel erosion; sediment sources and sediment routing through drainage systems. Authors hoped to evolve a new theoretical model on soil conservation in the tropics.

Land degradation/Soil erodibility/Rainfall characteristics

BRYAN, R.B., SUTHERLAND, R.A. 1989 DAE, SIDA

ERODIBILITY OF SOILS IN BARINGO DISTRICT.

DAE, SIDA
3 figs., 4 tables, 5 photos, 21 refs.

Paper is a summary of a study designed to provide initial information on the relative erodibility and associated properties of a range of soils in Baringo District that represent different erosion processes. Discusses and illustrates the experimental designs and laboratory analysis of soil characteristics of the area using ten sites located in different parts of the district. The classification and characteristics of the soil are shown in a table. Recommends a more extensive survey to modify conservation measures

Baringo District/Land degradation/Soil erodibility/Rainfall characteristics

CAMPBELL, D.J. 1977 UNEP

LAND USE COMPETITION AT THE MARGINS OF THE RANGELANDS: A PROPOSAL FOR RESEARCH IN KAJIADO DISTRICT

IDS Working Paper No. 22
University of Nairobi
12 pp.

Deals with the competition between pastoralism and agriculture in semiarid areas - between farmers and herders. States the population pressure in agricultural areas as the driving force of farmers migration to marginal dry land and the effect of drought on agriculture and grazing land.

Kajiado District/Land use/Socio-economic aspects
APPRAISING PROPOSALS FOR WATER SUPPLY INVESTMENTS

IDS Discussion Paper No. 195.
26 pp., 1 fig., 3 tables, 11 refs., appendix.

Paper discusses the feasibility and utility of economic appraisal for community water investments. Describes in details the scope of the current investments. Also discusses the special problems associated with the proliferation of self-help water schemes. Explores the problem of judging whether public and private water investments is at an appropriate level given national goals and available resources Suggests a set of criteria which may be used to obtain information about individual schemes.

Water resources/Organization

SOIL EROSION IN AFRICA

Geogrl. J. 82: 130-139

The paper reports personal observations on the causes of accelerated soil erosion: soil physical structure, geological formation, slope, climate, vegetation, cultivation, overgrazing and gives measures of reducing and preventing erosion.

Soil erodibility/Rainfall characteristics/Land degradation

MODELLING SOIL CHANGES UNDER AGROFORESTRY

DAE, SIDA
9 figs., 29 refs.

Paper argues that recent research has changed the older approach to soil conservation which emphasised controlling the rate of soil loss to that which recognizes that the effects of erosion extend to loss of nutrients, organic matter, and through the latter, deterioration of physical properties. Analyses the effects of trees on soil and justifies the choice of Soil Changes Under Agroforestry (SCUAF) carbon model approach to soil conservation.

Agroforestry/Chemical properties/Physical properties
CHEGE, G.N. 1989

NCCK WATER CONSERVATION PROJECT IN SEMI-ARID AREAS OF LAOIPIA WEST

8 pp.

Project objectives are to create awareness of clean water storage to the community in health conditions; promote technology for water conservation; assist the community in solving the water problem within the area; provide a source of water for household use; save time used to trek long distance to fetch water.

Laikipia District/Water resources/Soil and water conservation

CHEPKWONY, P.K. 1980

RESTORATION OF VEGETATION COVER ON DEGRADED GRAZING LAND IN A LOW RAINFALL AREA OF MACHAKOS DISTRICT

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi
7 figs. 8 tables, 16 refs. area map

Reports trials with ring infiltrometer on denuded rangeland and discusses ways of improving infiltration. Examines the adaptability of three grass species - Cenchrus ciliaris, Panicum maximum and Bothrichloa sp. for revegetation. Lists the causes of land denudation.

Machakos District/Causes/Infiltration/Revegetation

CHERUIYOT, J.K. 1989

WATER HARVESTING EXPERIENCES FROM SEMI-ARID AREA OF BARINGO

7 pp., 3 figs., 2 tables

Discusses macro-catchment and micro-catchment systems of water harvesting as adopted in Baringo District. Gives the advantages of micro-catchments over macro-catchments. Also discusses the major constraint to the adoption of water harvesting techniques in Baringo District. Contains schematic diagrams on how macro- and micro-catchments are laid for runoff harvesting.

Baringo District/Layout/Micro-catchments/Macro-catchments
76  CHERUIYOT, S.K. 1984

INfiltration rates and sediment production of a Kenya bushed grassland as influenced by vegetation and prescribed burning.

M.Sc. Thesis, Range Science Department, Texas A&M University College Station, Texas.

(not available for annotation)

Vegetation cover/Measurements/Infiltration

77  CHINA, S.S. 1979

Survey of conservation practices on steep land, Baringo District

Post Graduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi
86 pp. 6 figs. 9 tables, 8 refs. 7 plates

Report of a survey on existing soil and water conservation works, based on 14 terraces and 19 cutoff drains, along the Tugen hills of Baringo District.

Baringo District/Tugen/Cut-off drains/Terraces

78  CHINA, S.S., KUNDU, P. n.d.

Evaluation and mapping of erosion processes on Tutton Farm and its surroundings

(unpublished)

(not available for annotation)

Survey/Land degradation/Soil types
CHITERE, P. 1988
SOIL CONSERVATION IN KENYA
SIDA
133 pp., 4 figs.

The report contains background information on the soil and water conservation programme, agricultural development and socio-economic aspects, conservation techniques and management, use of trees, community participation, extension approach, training and staff development, the role of women in conservation, planning, monitoring and evaluation, staff organization, institutional collaboration and future support.

Soil and water conservation

CHRISTIANSSON, C. 1989
RATES OF EROSION IN EAST AFRICA SAVANNAH ENVIRONMENT: ASSESSMENT OF RUNOFF AND SOIL LOSS IN NATURAL CATCHMENTS AND ON EXPERIMENTAL PLOTS
(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O.
2 tables, 21 refs.

Paper summarizes results of studies on soil erosion rates in five natural catchments at Dodoma, and on runoff and soil loss on experimental plots at Mpwapwa Central Tanzania. The data is compared to that obtained from similar studies in other savannah lands of Africa.

Soil erodibility/Prediction/Run-off plots

CHUAGA, F.M. 1989
IRRIGATION CANAL DAMAGE BY EROSION, ANIMALS AND DREDGING MACHINES AT MWEA IRRIGATION SCHEME, KENYA
(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O.
DAE, SIDA
8 figs., 3 tables, 1 ref.

Paper summarizes findings of a study carried out in 1979 to investigate irrigation canal damage caused by erosion, animals and dredging machines at Mwea Irrigation Scheme, Thiba. Describes the physical features of the area, materials and methods used for study, and tabulates the results obtained.

Kirinyaga District/Mwea/Soil and land degradation
WATER SPREADING SCHEMES IN TURKANA LAND

A water spreading technique carried out at Lorengipe, Turkana is described. Results show good pasture production from three grass species from a spread of runoff water from a dry river bed into a wide area through a series of S-shaped bunds.

Turkana District/Water harvesting/Spate irrigation

FIRE WOOD AND ENERGY IN EASTERN AFRICA: AN ASSESSMENT OF THE ENVIRONMENTAL IMPACT ON ENERGY USE

Assesses the continuous firewood collection leading to collective deforestation and desertification. Recommends small community reforestation projects with the participation of the communities in project planning.

Soil and land degradation/Deforestation/Revegetation/Organization

SCHEDULE OF OPERATION FOR THE KENYA SOIL SURVEY PROJECT 1985-1987

Project seeks to co-operate in providing training for and the conducting of soil surveys which would provide information about the soils and land resources of Kenya required for accelerated agricultural development and systematic rural land use planning.

Soil types/Land use
CONENT, P.P. 1982

THORNS PAIRED, SHARPLY RECURVED: CULTURAL CONTROL AND RANGE LAND QUALITY IN EAST AFRICA

In Desertification and Development: Dryland Ecology in Socio Perspective
3 figs. 2 tables, 1 plate

Deals with the traditional practice of the Pokot people and argues that traditional herding and shifting cultivation are the integral part of the ecosystem and their removal can lead to results that are more undesirable than the effects of overgrazing.

West Pokot District/Overgrazing/Socio-economic aspects

CRITCHLEY, W.R.S 1984

RUNOFF HARVESTING FOR CROP, RANGE AND TREE PRODUCTION IN THE BPSAAP AREA

Baringo Pilot Semi-arid Area Project (BPSAAP), Draft 24 pp., 8 figs. 8 tables, 25 refs.

Draft deals with the macro and micro-catchment runoff harvesting systems, design theory, classification of systems, and systems selections for various production options. Gives some results on the runoff harvesting trials at Katorin, Baringo, on five different treatments for crop production, range reseeding and tree planting. It also provides a flow chart for systems selection and recommendations for the BPSAAP area.

Baringo District/Katorin/Macro-catchments/Micro-catchments/Revegetation

CRITCHLEY, W.R.S. 1989

RUNOFF HARVESTING FOR CROP PRODUCTION: EXPERIENCE IN KITUI DISTRICT

DAE, SIDA
2 figs., 2 tables, 8 refs. appendix.

Paper presents results of a study set out to establish whether runoff harvesting systems are viable, and whether one or another system could be recommended as an alternative soil conservation measure to fanya juu terracing for the lower zone of Kitui District. Report says that runoff harvesting worked well and showed crop-yield responses in seasons of below average rainfall.

Kitui District/Water harvesting/Soil productivity
88 CULLIS, A.D. 1981

A STUDY OF FARMING IN TURKANA DISTRICT OF NORTH-WEST KENYA
(unpublished report)
(not available for annotation)

Turkana District

89 DAGG, M., BLACKIE, J.R. 1965

STUDIES OF THE EFFECTS OF CHANGES IN LAND USE ON THE HYDROLOGICAL CYCLE IN EAST AFRICA BY MEANS OF EXPERIMENTAL CATCHMENT AREAS

IAHA Bull. 10: 63-75
(not available for annotation)

Land use

90 DAGG, M., PRATT, M.A.C. 1962

RELATION OF STORM FLOW TO INCIDENT RAINFALL

5 figs. 5 tables

Establishes a response relation to predict a total storm runoff from daily records of rainfall intensity for the Lagan and Sambret Catchment. Also compares runoff from administrative area and similar forested area.

Prediction/Rainfall intensity
DAINS, S.H., NJOROGE, P., NJUI, K. 1978

SOIL AND WATER MANAGEMENT IN THE MARGINAL/SEMI-ARID LANDS OF KENYA

Report No. 4 - Marginal/Semi-arid Lands Pre-investment Inventory, Kenya
136 pp. 21 tables, 24 refs. 2 plates, 7 graphs, 2 maps

Describes soil and water management in Machakos, Kitui and Embu Districts as well as Baringo - Kerio Valley area. Emphasis is laid on climatology and hydrology, soil erosion. Results of a soil conservation inventory and recommendations are given. Also describes in detail the ground water reconnaissance survey of the study areas and outlines rural water supply, irrigation and drainage.

Machakos District/Kitui District/Embu District/Baringo District/Soil- and water conservation

DAMBA, J. 1981

INVESTIGATION INTO CAUSES OF GULLYING AND GULLY CONTROL IN KANDARA DIVISION OF MURANG'A DISTRICT

Postgraduate Diploma project report, University of Nairobi, Department of Agricultural Engineering.
17 figs. 4 tables, 25 refs.

Surveys the causes and problems of gully erosion in Kandara Division of Murang’a District. Evaluates the present gully control practices of using wooden and stone check dams and analyses their effectiveness and cost.

Murang’a District/Gully erosion/Gully control/Dams

DANIDA 1981

KENYA: MUTUMO SOIL AND WATER CONSERVATION PROGRAMME - APPRAISAL REPORT AND PROGRAMME PROPOSAL

92 pp., 2 figs. 5 tables

The study has an in-depth description of the physical characteristics which include the location of the area, climate, vegetation, geology, and soil and water conditions plus the associated problems. The study analyses the actual programme proposal highlighting such components as the survey, soil conservation, agricultural techniques, and water conservation.

Kitui District/Water harvesting/Soil and water conservation/Management practices
DARNTON, N. 1979

PUSHING BACK THE DESERT

Desertification Control 2(1) pp 17-19
3 plates

Contains report of IPAL's Team activities in the Mt. Kulal area of Northern Kenya, where attempts are made to study the recovery of natural vegetation of the bare arid lands. Identifies the existence of more people and animals than the land can support as the main problem and suggest some remedies.

Marsabit District/Revegetation/Overpopulation/Soil and land degradation

DE JONG, C 1976

LAND USE ALTERNATIVES IN HIGH POTENTIAL AREAS OF MEDIUM TO HIGH ALT- IDE, THE KITALE - KAPENGURIA AREA

Kenya Soil Survey Miscellaneous Paper No. 3
68pp. 1 table, 41 refs.

The paper warns of the need for soil conservation measures if the land has to sustain the population, as erosion is severe.

West Pokot District/Land use/Overpopulation

DEPOMMIER, D. 1985

THE ROLE OF WOODY VEGETATION IN SOIL CONSERVATION AND REHABILITATION

33 refs.

The paper examines factors that cause and accelerate erosion processes as well as the qualitative loss of the soil. The paper also discusses the role of vegetation and woody perennials in soil conservation and rehabilitation.

Causes/Reclamation/Vegetation cover
DOWNING, T.E., KAMAU, G., NDONYE, M. 1985 DBT, NES

SOIL EROSION DATA FOR KIAMBU DISTRICT, 1982 AND MURANG'A DISTRICT, 1983

In: Monitoring Soil Erosion in Kiambu and Murang’a Districts, Kenya Progress Report 1982-3
National Environment Secretariat
18 pp., 11 tables

This paper is an entire compilation of tabulated data on site characteristics, erosion statistics, slope, erosivity, and gully sizes, in Kiambu and Murang’a districts.

Kiambu District/Murang’a District/Soil and land degradation/Physiographic characteristics/Gully erosion

DOWNING, T.E., KARABA, M. 1985 DBT, NES

REVIEW OF THE NES/ETMA SOIL EROSION MONITORING METHODOLOGY

In: Monitoring Soil Erosion in Kiambu and Murang’a Districts, Kenya Progress Report 1982-3
National Environment Secretariat
5 pp.

The paper is a review of the methodology designed by NES to make comparisons between the many factors affecting soil loss. Aspects of the methodology discussed include project organization and design, validation and reliability, technical application and use of information.

Kiambu District/Murang’a District/Policies/GoK

DUNNE, T. 1974

SUSPENDED SEDIMENT DATA FOR THE RIVERS OF KENYA

Report to the Ministry of Water Development, Nairobi.

(not available for annotation)

Measurements/Sedimentation
INTENSITY AND CONTROLS OF SOIL EROSION IN KAJIADO DISTRICT


Report of controlled plot experiments under simulated rainstorm on different soil types, slope, storm, antecedent soil moisture and cover density, trampling by cattle and their effect on soil loss, runoff and ability of revegetation. Reports high rates of soil erosion, gives causes of variation, estimates life span of soil profile and concludes the need to develop intelligent land management.

Kajiado District/Run-off plots/Rainfall simulation/Compaction/Physical properties

STUDYING PATTERNS OF SOIL EROSION IN KENYA


Describes some methods of quantifying erosion rates on hill slopes. Also gives runoff hydrograph of portable rainfall simulator study on small plots of 5 by 2 m and sediment yields of some Kenyan rivers.

USLE/Rainfall simulation/Run-off plots/Sedimentation

SEDIMENT YIELD AND LAND USE IN TROPICAL CATCHMENTS

J. Hyd., (Amsterdam) 42(3/4): 284-300 6 figs., 2 tables, 52 refs.

Analyses sediment yields from 61 Kenyan catchments in relation to land use as the dominant control of erosion. Indicates the effect of climatic and topographic variables within each land use category. Gives estimates of long term geological rate of erosion and isolates rural roads as the major contributors of sediment from disturbed catchments.

Measurements/Sedimentation/Land use/Prediction/Physical infrastructures
EFFECT OF WOODFUEL HARVEST ON SOIL EROSION IN KENYA

Kremu - Ministry of Energy Publication
84 pp., 24 figs., 3 tables, 36 refs.

Deals with the effect of woodfuel harvest on erosion in high potential areas, based on the (U)SLE. Provides a map of distribution of erosion rates for range lands. Reports density of ground cover and gradient to be more important than canopy cover. Concludes that selective removal of trees for charcoal burning does not increase erosion whereas complete clearing of forests for cultivation does.

USLE/Vegetation cover/Soil erodibility/Deforestation

CENOZOIC EROSION RATES IN KENYA

Department of Geological Sciences and Quaternary Research Centre, University of Washington

(not available for annotation)

土壤类型/土地退化/USLE

RECENT AND PAST EROSION RATES IN SEMI-ARID KENYA

Z. Geomorphol Suppl. Bd. 29: 130-140
Berling, Stuttgart
8 figs., 15 refs., summ - En., Fr., Germ.

Deals with geological background rate of erosion in semi-arid Kenya, calculated from cenozoic erosion surfaces and from current sediment yields. Gives measurement of chemical denudation on present rate. Describes the use of tree-root exposure measurement to obtain hill slope erosion. Suggests the use of the measured soil erosion rate to predict soil profile thinning and ultimate removal.

Soil types/Land degradation/USLE
RAPID EVALUATION OF SOIL EROSION AND SOIL LIFESPAN IN THE GRAZING LAND OF KENYA, THE HYDROLOGY OF AREAS OF LOW PRECIPITATION

IAHS -AISH No. 128 pp. 421-428
8 figs., 16 refs.

Discusses the technique of mapping recent soil erosion rates on heavily grazed rangeland by measuring the exposure of dateable tree roots. Can help to recognize temporal variation in erosion. Deals with the relationship between erosion rates and their controls that can be used to determine the rate of thinning and eventual removal of soil along a hillslope profile.

USLE/Maps

SIMPLE AND PORTABLE EQUIPMENT FOR EROSION EXPERIMENTS UNDER ARTIFICIAL RAINFALL

8 figs., 1 table, 16 refs.

Describes the design and operation of a simple portable rainfall simulator. Gives dimensions of a simulator, plot size and techniques of sampling and measuring runoff and soil loss.

Rainfall simulation/Run-off plots

RECOGNITION AND PREDICTION OF RUNOFF PRODUCING ZONES IN HUMID REGION

(not available for annotation)

Prediction
DUNNE, T., ONGWENI, G.S.O. 1976 DBT

A NEW ESTIMATE OF THE RATE OF SEDIMENTATION IN RESERVOIRS ON THE UPPER TANA RIVER, KENYA

6 figs., 3 tables, 5 refs.

Examines the rate of sedimentation in the Upper Tana Catchment. Reviews the previous estimates of sediment measurements, and using the data available at the time, suggests there was a great underestimation of the rates of sedimentation and outlines areas for future research.

Sedimentation/Measurements

DUNNE, T., WAHOME, E.K., AUBRY, B. 1981 KREMU

AN ORDINAL-SCALE CLASSIFICATION OF WATER EROSION INTENSITY

Ministry of Energy and Natural Resources, KREMU, Nairobi, and University of Washington, Seattle, USA. Tech. Report Series No. 46
11 pp., 1 fig., 9 refs., 1 fold map

Points out the practices that contribute to soil erosion, mentions the consequences of soil erosion, warns that erosion is on the increase and discusses the need, purpose and techniques of monitoring erosion. It also gives outlines of soil erosion intensity classification based on erosion indicators: rills, gullies, pebble-capped pedestals of soils, erosion pavements, certain mounds of residual soil around plants, exposed root crowns, deposition etc. Lists seven classes and five limitations of the system.

Causes/Impacts/Survey

EAST, B. 1986 SIDA

SOCIAL FORESTRY EXTENSION METHODOLOGIES AND THE INTRODUCTION OF AGR-OFORESTRY INTO TRADITIONAL FARMING SYSTEMS IN SOUTH NYANZA DISTRICT

34 pp., 5 photos, 6 appendices.

The paper is a summary of agroforestry efforts in South Nyanza district. The paper also outlines the general land use in the district and suggests reasons as to why agroforestry should be incorporated into the farming systems. The paper examines a number of agroforestry methodologies and gives strategies to be followed to increase the number of trees in the farms.

South Nyanza District/Socio-economic aspects/Land use/Agroforestry
112 ECO SYSTEMS LTD. 1985

TURKANA DISTRICT RESOURCES SURVEY 1982-84. MAIN REPORT.
(not available for annotation)
Turkana District/Survey

113 EDWARDS, D.C. 1945

REPORT ON THE GRAZING AREAS OF THE TURKANA DISTRICT OF KENYA
31 pp., 9 plates, 1 map.
Describes the dominant grass species, climate, vegetation deterioration as a result of overgrazing and desertification. Gives remedial measures for regulating human and animal population, water supply (adequate distribution) and use of closing, ownership and reserve to control grazing.
Turkana District/Overgrazing/Land degradation/Soil types/Overpopulation

114 EDWARDS, D.C. 1951

VEGETATION IN RELATION TO SOIL AND WATER CONSERVATION IN EAST AFRICA
(not available for annotation)
Soil and water conservation/Vegetation cover
EDWARDS, K.A. 1978

REPRESENTATIVE AND EXPERIMENTAL BASIN PROGRAMME

In Soil and Water Conservation in Kenya. Proceedings of a Workshop, University of Nairobi, 21-23 Sept., 1977
IDS Ocaassional Paper No. 27 pp. 92-96

Identifies the need for water resources study and describes a programme carried jointly by Kenyan Government and the U.K. Ministry of Overseas Development to monitor sediment yield on four representative catchments in Machakos, Kitui and Embu districts from 1976 to 1979.

Measurements/Sedimentation

EDWARDS, K.A. 1979

SOIL AND WATER CONSERVATION IN SEMI-ARID AREAS

IDS, University of Nairobi

(not available for annotation)

Soil and water conservation

EDWARDS, K.A. 1979

REGIONAL CONTRASTS IN RATES OF SOIL EROSION AND THEIR SIGNIFICANCE WITH RESPECT TO AGRICULTURAL DEVELOPMENT IN KENYA

In Soil Physical Properties and Crop Production in the Tropics (Eds). Lal, R. and Greenland, D.J.
John Wiley and Sons, Chichester, pp. 441-454
4 figs., 2 tables, 25 refs.

It assesses soil erosion from suspended sediment for the period of 1948-65 from 41 river gauging stations in Kenya and 2 stations from Tanzania. It gives the relationship between sediment yield and catchment area. Estimates of bed load are also provided. Divides erosion intensity into four regions, with the basement complex areas with the highest rates of erosion. Recommends priority to be given to the high potential areas.

USLE/Sedimentation
EDWARDS, K.A. 1979

CATCHMENT SEDIMENT YIELDS AT KIMAKIA

1 fig., 3 tables.

Compares suspended sediment yield of three catchments of the Aberdare area under pine and bamboo plantations. Shows that pine catchments yield twice as much as the bamboo catchments during the establishment phase and sediment losses increase more as a result of road building and maintenance.

Sedimentation/USLE/Vegetation cover/Physical infrastructures

EDWARDS, K.A. 1979

WATER RESOURCES AND SOIL CONSERVATION: THE KENYA SITUATION

Eds. Coastelino, J.B. and Khamala, C.P.M.
Nairobi, KNAAAS, pp 167-176
1 fig., 1 table, 5 refs.

Deals with the relationships between the hydrological cycle and soil erosion in the high, medium and low agricultural potential areas of Kenya. Also identifies priorities in conservation planning.

Soil and water conservation/Soil and land degradation/Policies

EDWARDS, K.A., BLACKIE, J.R. 1981

RESULTS OF THE EAST AFRICAN CATCHMENT EXPERIMENTS 1958-1974

In: Tropical Agricultural Hydrology
(Eds). Lal, R. and Russel, E.W.
John Wiley and Sons Ltd., Chichester, pp. 163-188
1 fig., 15 tables, 21 refs.

Report of the Kericho experiment, where two catchments one under forest, the other under tea plantation and the Kimakia (three catchments - under natural bamboo forest, pine plantations and Kikuyu grass) were studied to monitor changes in hydrology as a result of changes in land use. Tea resulted in an overall reduction in water use and pine replacement initially decreased water use but showed no significant difference when fully grown.

Kericho District/Vegetation cover/Land use
EKBERG, N., LARSSON, M. 1982

SOIL, LAND AND RAINFALL CHARACTERISTICS OF IMPORTANCE TO SOIL EROSION IN NEW GAKANGA, NYANDARUA RANGE, KENYA

University of Stockholm, Department of Physical Geography, Stou-NG52 Stockholm
112 pp., 41 figs., 22 tables, 57 refs.

A study of land degradation parameters on two different land use sites in Central Province. Soil parameters such as pH, total organic carbon, NPK, bulk density, texture, water stable aggregates, porosity, water retention properties and infiltration capacity are given. Concludes degradation has not started, and suggests the use of proper conservation measures to prevent gradual deterioration. Suggests some land management practices to minimize soil loss.

Nyandarua District/Chemical properties/Physical properties/Management practices/Structural methods

ENGELHARD, R. 1986

AGROFORESTRY, SOIL CONSERVATION AND WOODFUEL IN MURANG'A DISTRICT PART III - PROPOSAL FOR FURTHER ACTION

Kenya Woodfuel Development Programme
23 pp., 4 tables.

This is a programme proposal for an agroforestry project in Murang'a District which sought to develop: manpower capacity; technical agroforestry options which would contribute to the soil stability and fertility; mass extension approach; and seed production and collection/supply system.

Murang’a District/Agroforestry/Extension

ERIKSSON, J., GERREMO, I., SKOOG, D., SUMER-LIND, M. 1980

SOIL CONSERVATION IN KENYA 1980 REVIEW, NAIROBI

51 pp.

Report of the review team on the soil conservation work carried out from 1974 - 1980, including long term policy considerations. Emphasises the small scale farmer, educational approach, labour intensive technology. Evaluation consists of the method, dry land agriculture, water conservation, drought resistant crops, range and grazing land, nurseries, planting of trees, educational activities, technical and economic assessments, organization, staffing, coordination, administrative procedure, and proposed budget.

Soil and water conservation
WATER HARVESTING EXPERIENCE FROM TURKANA DISTRICT

Paper presented at the ASAL Soil and Water Conservation Programme Development Workshop, Embu, 18th-22nd Sept., 1989
19 pp., 1 table, 7 refs.

Gives background information on Turkana District, and the history of water harvesting in the district. Also gives the definitions used in water harvesting, water source, and water use. Discusses the water harvesting methods practiced in the district. Analyses Oxfam water harvesting project in the district and gives the benefits of water harvesting, problems encountered in the project, and some recommendations.

Turkana District/Water harvesting/NGO's

SULPHUR STATES OF SELECTED KENYAN SOILS

4 tables, 21 refs.

Paper outlines the materials and method of assessing sulphur status of major agricultural soils of Kenya and tabulates some information necessary for the evaluation of soils that require sulphur fertilizer. Research carried out in Coast Province and highlands east and west of the Rift valley.

Chemical properties/Chemical treatment

AN EVALUATION OF SOIL CONSERVATION PRACTICES IN NYERI DISTRICT IN KENYA
REPORT FROM A MINOR RESEARCH TASK

SUAS, IRDC
135 pp., 18 figs., 12 tables, 17 refs.

Report outlines the general and agro-ecological facts about Nyeri District and a brief historical background of land and soil conservation policies with a reference to Kikuyuland. Objectives of the study are to:— carry out a technical evaluation for one district of Kenya; identify technical problems in connection with the soil project in the district concerned; recommend solutions to these problems; identify successful technical measures; and identify problems of implementation.

Nyeri District/Policies
SOIL CONSERVATION IN KENYA - SOCIO-ECONOMIC PROFILES FROM GACHOKA AND RUNYENJES DIVISIONS, EMBU DISTRICT - EASTERN PROVINCE, KENYA

Ministry of Agriculture, Soil and Water Conservation Branch. 27 pp., 2 tables, 12 refs.

Study comprises two separate profile which provide a brief account of socio-economic aspects and factors influencing the operation of the soil and water conservation programme in the divisions. Discusses the extent of soil erosion and the appropriate methods to combat erosion.

Embú District/Socio-economic aspects

WATER SPREADING IN TURKANA: A HOPE FOR AN UNPOVERTIZED PEOPLE


A survey report on the people of Turkana, the land and famine. Discusses the Impal Pilot Spreading Scheme where flood water was diverted by gabion weir into an area controlled by dykes. Experiment run with grass and crop trial.

Turkana District/Spate irrigation

RANGELAND SURVEY KENYA: VEGETATION LAND USE SURVEY OF SAMBURU DISTRICT


(not available for annotation)

Samburu District/Land use/Vegetation cover
130 FAO -UNDP 1972

RANGELAND SURVEY KENYA: VEGETATION LAND USE SURVEY OF NAROK DISTRICT


(not available for annotation)

Narok District/Land use/Vegetation cover

131 FIDDES, D., FORSGATE, J.A., GRIGG, A.D. 1974 DBT

THE PREDICTION OF STORM RAINFALL IN EAST AFRICA

Transport and Road Research Laboratory, Department of Environment, TRRL Laboratory Report. Crowthorne, Berkshire. 50 pp., 17 figs., 20 tables, 15 refs.

Describes a simple method for predicting the characteristics of storms for the design of drainage structures in East Africa. Provides daily rainfall. Tables of daily point rainfall for any frequency are also given and describes depth-duration-frequency relationship.

Rainfall characteristics/Design

132 FIELD, A.C. 1978 IPAL

PRELIMINARY REPORT ON THE IMPACT OF SHEEP AND GOATS ON THE VEGETATION IN THE ARID ZONE OF NORTHERN KENYA

IPAL Technical Report No. E-2 36 pp., 3 figs., 17 refs., appendix

Project report to assess the impact of small-stock in the process of desertification around settlements occupied by nomads. Also gives optimum stocking rate for sheep and goats.

Marsabit District/Soil and land degradation/Overgrazing
133 FIELD, C.R. 1979
PRELIMINARY REPORT ON ECOLOGY AND MANAGEMENT OF CAMELS, SHEEP AND GOATS IN NORTHERN KENYA
23 pp., 2 figs. 15 refs.
Survey of areas of badly and lightly grazed land. Gives estimates of carrying capacity, high stocking rate near settlements, percentage of vegetation type (woody and in relation to stock diet). Shows a degrading environment, in areas of highest stocking where intake exceeds production beyond 21%.
Marsabit District/Soil and land degradation/Overgrazing/Vegetation - cover

134 FIGUEIREDO, P. 1986
THE YIELD OF FOOD CROPS ON TERRACED AND NON-TERRACED LAND - A FIELD SURVEY OF KENYA
Report From a Minor Research Task
SUAS, IRDC Working Paper No. 35.
24 pp., 3 figs., 13 tables, 3 photos, appendix.
The main aim of this study was to compare the yields of food crops grown on terraced and non-terraced farms, as well as the type and amount of inputs used, and in general, to try to assess the effect of terracing on yields. The survey was carried out in Kangundo Division, Machakos District, between October 1984 and February 1985.
Machakos District/Kangundo/Soil productivity/Terraces

135 FINKEL, M. 1985
REPORT ON WATER HARVESTING IN TURKANA, KENYA
Draft Report.
(not available for annotation)
Turkana District/Water harvesting
A STRATEGY FOR TECHNICAL ASSISTANCE TO TURKANA, KENYA


DAE, SIDA

1 fig., 5 refs.

Paper discusses a strategy in three stages which could be used to overcome the impacts of droughts and famine and prepare local population for a sustainable development. Gives a historical outline of conservation programmes carried out in Turkana District and examines semi-circular hoops and trapezoidal bunds as structures which could be taught to the local people for implementation.

Turkana District/Macro-catchments/Extension

CROPPING SYSTEMS FOR SOIL CONSERVATION IN KENYA


2 figs., 1 table, 16 refs.

Paper dealing with rainfall erosivity in relation to rainfall season, ground cover of crops and residues, the need of mechanical methods of conservation in drier areas of Eastern Province and mixed cropping in the high potential areas.

Rainfall characteristics/Vegetation cover/Structural methods/Plant - residues

THE SEMI-ARID HIGHLANDS OF LAIKIPIA, KENYA: SMALL SCALE FARMERS IN A MARGINAL ENVIRONMENT


(not available for annotation)

Laikipia District
REPORT ON THE FAO/SIDA/ARCN REGIONAL SEMINAR ON SHIFTING CULTIVATION AND SOIL CONSERVATION IN AFRICA


A brief report on the state of shifting cultivation and soil erosion as well as government policy in research, and improved crops for the semi-arid areas of Kenya.

Land use/Policies

FORSGATE, J.A., TEMIYABUTRA, S. 1971

RAINFALL AND RUNOFF FROM AN INDUSTRIAL AREA IN NAIROBI, KENYA

Road Research Laboratory Report LR 408. Department of Environment, Crowthorne, Berkshire

(not available for annotation)

Physical infrastructures

FREDENSLUND, A., CASSADY, J. 1969

SEEDING GRASSES ON DENUDED KENYA BUSHLAND

Kenya Fmr. No. 159, pp. 7 & 30
3 plates

A report of a trial with seeding technique and bush stands with six different grass species to select best species and test the possibility of reseeding the area with grass. Provides grass yields and chemicals used to deter growth of bush roots.

Baringo District/Reseeding
ASSASING THE RELATIVE ERODIBILITY OF SOME KENYAN SOILS USING A RAINFALL SIMULATOR AND THE PREDICTION OF RELATIVE ERODIBILITY FACTORS. (1)
AN ASSESSMENT OF SOIL EROSION SUSCEPTIBILITY OF A SELECTED AREA IN KILIFI DISTRICT. (2)

Msc. Thesis, University of Nairobi, Department of Soil Science
151 pp., 10 figs., 9 tables, 5 plates, 136 refs.

Part 1 assesses the relative erodibility of 15 Kenyan soils using a rainfall simulator. Develops a regression equation that would predict relative soil erodibility under a 1 hr. 47 mm/hr. simulated storm. Gives soil loss and K values, Tests Wischmeier soil erodibility nomograph. Part 2 gives a detailed erosion susceptibility map of Kizurini (185 ha), Kilifi District based on three methods.

Kilifi District/Rainfall simulation/Soil erodibility/Rainfall characteristics

A REVIEW OF METHODS OF MEASURING SOIL ERODIBILITY

5 pp., 23 refs.

Paper discusses the measurement of erodibility of soils from runoff plots using natural rainfall, and laboratory measurements using a rainfall simulator. Emphasizes that planning and designing of conservation measures ought to be based on the tolerable soil erosion and runoff data for a given situation.

Run-off plots/Rainfall simulation/Soil loss tolerance/Design

MAPPING OF SOIL EROSION SUSCEPTIBILITY/HAZARD: A REVIEW OF ASSESSMENT TECHNIQUES

17 refs.

Paper reviews the soil erodibility assessment techniques used in Kenya.

Prediction/Maps
SOILS OF THE EVURORE CATCHMENT AREA, EMBU DISTRICT, KENYA: THEIR EROSION SUSCEPTIBILITY/HAZARD AND MANAGEMENT


Paper discusses the environmental and soil characteristics of the area, and the soil erosion status and erosion management. Suggests that measures aimed at improving the surface structure, restoring vegetation cover, enhancing infiltration, can provide some useful solution to the problems of soil and water losses.

Embu District/Management practices/Chemical properties/Physical properties

SOIL CONDITIONS OF THE BROOM HILL FARM, TIMAU (LAIKIPIA DISTRICT)

Kenya Soil Survey Site Evaluation Report No. P69. 18 pp., 5 tables, 9 refs., 2 appendices, 1 map scale 1:10,000.

Study examines the status of environmental conditions of the area, focussing on issues pertaining to location, climate, geology, physiography, hydrology, land use and water supply. Discusses the fertility status of the soils and land suitability for agriculture. Gives some recommendations on how to improve the soils, and a map showing the location of the area.

Laikipia District/Chemical properties/Land use

SOIL EROSION: MAJOR SOIL TYPES OF CENTRAL AND EASTERN PROVINCES AND THEIR SUSCEPTIBILITY TO SOIL EROSION

Lecture notes presented to the Soil Conservation Officers from Central Province, 14th Jan. 1985. 5 pp., 1 table, 4 refs.

Paper contains classical definitions of various terms as they apply to soil erosion with a special reference to soil erodibility. Has a table that gives a breakdown of the major soils found in Central Province and their susceptibility to erosion.

Soil erodibility/Rainfall characteristics
GACHENE, C.K.K. 1989
DAE, SIDA

NUTRIENT LOSSES IN ERODED SOIL MATERIAL FROM SOME KENYAN SOILS

DAE, SIDA
2 tables, 8 refs.

Paper gives preliminary results of nutrient losses in some eroded soil materials in relation to original soil material of some commonly occurring soils in Kenya. Also gives a table on nutrient losses of eroded soil material in relation to plough layer soils.

GACHENE, C.K.K., BARBER, R.G. 1983
IDS

A PRELIMINARY REPORT ON AN EVALUATION AND DETAILED MAPPING OF THE EROSION SUSCEPTIBILITY AT KALOLENI, KILIFI DISTRICT

3 figs., 19 refs.

Evaluates and maps at a detailed scale the erosion susceptibility of the Kaloleni area, Kilifi District by the quantification parametric approach based on the Universal Soil Loss Equation (USLE).

GACHENE, C.K.K., D’COSTA, V.P. 1986
KSS, SSD

THE CHARACTERISTICS, CLASSIFICATION AND LAND USE OF HISTOSOLS IN KENYA

1 fig., 3 tables, 13 refs.

Paper says that most histosols occur in swampy areas and are characterized by dense papyrus vegetation. The surface layer consists of raw organic matter resting at variable depths on clay or rock. Chemical analysis indicate low pH values, high amounts of organic matter and fertility status to be fairly good. Further says that very few swamps have been reclaimed in Kenya, and the reclaimed ones serve the nearby people for farming and grazing.

Soil types/Chemical properties/Reclamation/Land use
GACHENE, C.K.K., GICHERU, P.T., NJOROGE, S.N.J. 1987 KSS, PPCSCA

SOIL EROSION AND ITS CONTROL IN THE STEEPLAND HUMID AREAS OF KENYA


The paper briefly examines the state of erosion, and soil conservation measures undertaken by both the government and farmers in the steepland humid areas of Kenya.

Soil and water conservation

GACHENE, C.K.K., WANJOGU, N.S., GICHERU, P.T. 1988 KSS, SSD

THE DISTRIBUTION, CHARACTERISTICS AND LAND USE OF SANDY SOILS IN KENYA

Paper presented at the International Symposium on 'Managing Sandy Soils', Jodhpur, India, February 8-12, 1988. 8 pp., 2 tables, 8 refs.

Paper gives an outline of the distribution, characteristics and land use of sandy soils in Kenya and discusses the physical and chemical characteristics of the soils in relation to their agricultural suitability.

Soil types/Physical properties/Chemical properties/Land use

GACHENE, C.K.K., WARURU, B.K., WACHIRA, T. 1986 KSS

DETAILED SOIL SURVEY OF THE VOO RESEARCH SUB-STATION, KITUI DISTRICT


Study discusses environmental conditions of the area and describes location, climate, average annual and seasonal rainfall, crop water requirements, evaporation, geology, physiography, hydrology, vegetation and present land use. Discusses properties, status and characteristics of soils of the area in relation to land suitability for rainfed cereals, pulses and root crops.

Kitui District/Chemical properties/Soil types/Physical properties
154 GACHENE, C.K.K., WEEDA, A. 1984 KSS

THE LAND QUALITY: RESISTANCE TO EROSION AND ITS APPLICATION IN THE IUNI CATCHMENT AREA, MACHAKOS DISTRICT, KENYA

5 figs., 6 tables, 14 refs.

Paper reviews the criteria, used over some years, to assess the land quality resistance to erosion caused by rainfall. Iuni Catchment Area of Machakos District is used as a case study. Gives tables indicating the factors and ratings of erosion.

Machakos District/Iuni/Rainfall characteristics/Soil erodibility

155 GACHERU, B.M. 1985 DAE

A STUDY OF THE SUITABILITY OF CONCRETE ROAD DRAINAGE CHUTES ON THE RUIRU- GITHUNGURI-UPLANDS ROAD AND SOME ADJOINING ROADS

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
65 pp., 9 figs., 14 tables, 2 maps, 12 refs., 5 appendices

Study sets out to determine:—effectiveness/suitability of chute structures in containing road runoff; whether design criteria are in conformation with expected runoff; whether structures are ineffective, and if so, the effects of runoff on farms; effects of discharge at downstream end, and percent land lost due to the structures in individual farms.

Kiambu District/Physical infrastructures

156 GARDNER, N.M. 1942 KNA

THE ROLE OF TREES IN SOIL CONSERVATION


Points out that tree planting alone is not a solution to soil erosion. If trees are thick, there is a danger of no cover and flow erosion can occur. Trees do not always protect soil on steep slopes. Lists advantages of tree planting other than soil protection.

Revegetation/Vegetation cover
157 GATAHI, M.M., D’COSTA, V. 1984

LAND SUITABILITY EVALUATION BASED ON RESISTANCE TO EROSION AND OTHER LAND QUALITIES IN A PART OF KILIFI DISTRICT

12 pp., 10 tables, 9 refs.

Study was done on 13,000 ha of rolling to gently undulating area in Kilifi District to assess the suitability of land for the present land utilization types with due emphasis on resistance to erosion. Discusses the performance of various crops in the well drained soils on sloping areas, and the type of technology that need be introduced to farmers in sloping areas to facilitate reducing soil erosion rates.

Kilifi District/Land use/Soil erodibility/Rainfall characteristics

158 GATAHI, M.M., MUCHENA, F.N. 1985

THE STATE OF SOIL SURVEY, SOIL TESTING AND SOIL CONSERVATION IN KENYA

12 pp., 6 refs.

Paper reviews the status of soil surveys, soil classification, land evaluation, and soil conservation in Kenya, and how the activities have helped to generate some knowledge in the formulation of appropriate land use practices.

Survey/Land use/Soil and water conservation

159 GATHURU, P.K. 1982

IMPLEMENTATION OF SOIL CONSERVATION PRACTICES ON SMALL SCALE FARMERS IN THE MAAI-MAHIU AREA IN KENYA

Msc Thesis in Environmental Studies. University of Khartoum.
132 pp., 13 figs., 15 tables, 5 plates, 109 refs.

Msc thesis dealing with the main physical and socio-economic constraints to proper implementation of soil conservation on small scale farms in Maai-Mahiu area near Longonot. Low awareness of the soil degradation problem and inadequate knowledge of the solution are given as factors aggravating the situation. Recommends priority should be given to environmental education and legal ownership of the land.

Nakuru District/Socio-economic aspects
SOIL EROSION PROBLEMS AND POSSIBLE SOLUTIONS IN THE LONGONOT/KIJABE HILL AREA OF THE RIFT VALLEY PROVINCE

DAE, SIDA
6 refs.

The paper is a review of various studies on soil and water conservation carried out in the area between 1979 and 1985. The studies reviewed covered rainfall simulation, constraints to soil conservation measures, erosion problems, and possibilities and problems associated with the implementation of soil conservation measures.

Nakuru District/Kijabe/Rainfall simulation/Soil and water conservation

SOILS OF THE KAPENGURIA AREA

172 pp., 15 figs., 46 tables, 96 refs., 4 photos, 24 fold maps
scale 1:250,000 to 1:1,000,000

Describes the environmental conditions of the area covering climate, geology, erosion, vegetation and present land use. Also covers the survey methods and soils, describing soil mapping units, soil classification, soil fertility, soil physics and land management with emphasis on land suitability for farming. Ends with recommendations on land use.

West Pokot District/Chemical properties/Soil types/Physical properties

THE ROLE OF AGROFORESTRY IN SOIL AND WATER CONSERVATION

In Soil and Water conservation in Kenya - Proceedings of a Second National Workshop, Nairobi, March 10-13, 1982
Edited by Thomas, D.B. and Senga, W.M. IDS Occasional Paper No. 42
pp. 338-349
1 fig., 7 tables, 10 refs.

Defines agroforestry, gives the traditional and modern methods of agroforestry, the basis and soil enriching principles of trees. Lists tree species that can be used with agriculture and gives data on production input and income for different methods of agroforestry from Nigerian experience.

Soil and water conservation/Multi-purpose trees/Agroforestry
AGROFORESTRY/AFFORESTATION IN KENYA: THE EXPERIENCE OF THE KENYA RENEWABLE ENERGY DEVELOPMENT PROJECT

The paper gives an overview of tree planting in Kenya with a special focus on a growing awareness on the need of conserving the environment. The paper briefly examines the population dynamics and impacts and suggests that agroforestry be encouraged.

**Agroforestry/Revegetation**

A FIELD GUIDE - AGROFORESTRY IN KENYA

Introduces agroforestry as an appropriate tropical land use system. Describes the interaction between the tree/shrub component and food crops and livestock, and how this combination benefits the farmer. Gives details of different establishment and management techniques used in agroforestry systems. Also describes certain selected agroforestry systems and practices.

**Agroforestry/Land use/Crop vegetation cover/Management practices**

CONSERVATION OF SOIL FERTILITY ON COFFEE ESTATES WITH SPECIAL REFERENCE TO ANTI-EROSION MEASURES

Discusses the importance of conserving soil humus, nutrients (NP) and moisture of the red coffee soil and the mechanical methods of treating slope with terraces and their different types.
**AN AIR PHOTOGRAPH INTERPRETATION OF EROSION AND LAND USE CHANGE IN A PART OF KITUI DISTRICT, KENYA**

Msc. Thesis. Cranfield Institute of Technology, National College of Agricultural Engineering (Silsoe)
84 pp., 5 figs., 8 tables, 60 refs., 10 maps

Land use, drainage net and severity of erosion were mapped from air photos of 1948 and 1980 for an area of 4.5 Km², north of Kitui town, by the grid square classification method, and checked by ground survey. Indicates state of condition of channel and sheet erosion, terracing. Shows change in area of cultivated and wood lands. Recommends the need for further research on erosion under woodlands, reclamation of denuded lands, grazing management, and use of conservation tillage, mulches and terraces.

Kitui District/Survey/Sheet erosion/Terraces/Reclamation

**DETAILED SOIL SURVEY OF THE KATUMANI NATIONAL DRYLAND FARMING RESEARCH STATION FARMS (MACHAKOS DISTRICT)**

45 pp., 19 tables, 17 refs., 2 appendices, 1 map 1:10,000

Paper looks at the physical environment of the area with special focus on potential evapotranspiration, water balance, geology and physiography, vegetation and land use, hydrology and water quality. Analyses and discusses the soils of the region, and land suitability for dryland farming.

Machakos District/Katumani/Soil types

**SEMIARID LANDS OF BARINGO DISTRICT, A CASE STUDY**

21 pp., 1 fig., 2 tables, 8 refs. appendix

The paper describes the semiarid lands of Baringo, in respect to climate, vegetation, soils, agricultural potential, people and land use. Points out the seriousness of soil erosion, and past efforts of soil conservation. Gives recommendations on the proper use of soil conservation measures that include the preservation of ground cover and refraining from cultivating steep slopes.

Baringo District/Soil and land degradation/Soil and water conservation
169 GICHOHI, C.M., KALLANI, D.F.M. 1979
BARINGO/KERIO VALLEY, ANALYSIS AND PROJECT IDENTIFICATION
Report No. 11. Nairobi, Ministry of Agriculture Arid/Semiarid Lands Development Branch
263 pp.
(not available for annotation)
Baringo District/Kerio Valley

170 GICHOHI, C.M., WANJAIYA, J.K., KARIUKI, I.D.P. 1977 ASAL
MARGINAL/SEMIARID LANDS STUDY PROJECT SUMMARY REPORT OF THE MID POINT REVIEW (SEMIMAR) 20 NOV. - 2 DEC. 1977, NAIROBI
45 pp.
A summary of a seminar on project identification and subject matter discussion on the Marginal/Semiarid lands. Discussion covers water and soil conservation, roof catchments, catchment protection, surface dams, measurements of soil loss on different soils and land use, terrace type recommendations, and maximum cultivable land. Seminar recommends the formation of a soil conservation section in the Ministry of Agriculture and the establishment of a catchment planning team.
Soil and water conservation/Water harvesting/USLE/Terraces/Policies

171 GICHUKI, F.N. 1989 DBT
HYDRO-ECONOMIC ANALYSIS OF WATER HARVESTING
9 pp., 1 table, 12 refs.
This paper reviews hydrologic and economic considerations in water harvesting for plant production and identifies common ground between engineers and economists. Examines issues pertaining to water availability, drought analysis, farmer characteristics, cost of developing and maintaining water harvesting structures, design considerations, operational adjustments in light of changing climatic conditions and opportunities for further research.
Water harvesting/Design/Economic considerations
WATER MANAGEMENT IN SEMI-ARID REGIONS


Paper addresses itself to water management issues pertaining to the manipulation and use of water for the production of food and fiber. Discusses water management challenges, and the contribution of the Department of Agricultural Engineering of the University of Nairobi in promoting productivity and sustainability of land and water resources in semi-arid lands.

Water harvesting

CONSERVATION IN NYANZA PROVINCE


A short article dealing with the problems of sheet and gully erosion and flooding in Nyanza Province. A programme for afforestation, construction of flood preventive dykes, opening of river outlets, canalization of river beds and lake shores swamps drainage is also described.

Sheet erosion/Gully erosion/Revegetation

SOIL CONSERVATION IN CENTRAL PROVINCE (KENYA)

Ministry of Agriculture, Nairobi

(not available for annotation)

Soil and water conservation/Extension
175 GICHUNGWA, J.K. 1972

TERRACING AND TERRACE MAINTENANCE

Ministry of Agriculture, Nairobi
(mimeographed)

(not available for annotation)

Terraces/Maintenance

176 GICHUNGWA, J.K. n.d.

MOTTO

Soil Conservation Service, Land Development Division, Ministry of Agriculture, Nairobi. Serial 1
8 pp., 6 plates

A small pamphlet briefly describing the functions of the soil conservation service, deployment of staff, services to farmers, equipment and its provisions, charges for the various services.

Soil and water conservation/Extension

177 GICHUNGWA, J.K. n.d.

CONSTRUCTION AND USE OF THE LINE LEVEL

KADOK No. 10325
Ministry of Agriculture, Nairobi.
20 pp.

Describes the construction and use of a line level including measuring slopes, setting out the horizontal distance of terraces, terrace checking techniques, drainage ditches and contour surveying.

Terraces/Layout
REPORT ON AGRO-FORESTRY SURVEY IN THE VILLAGES OF NORTHERN MACHAKOS, KENYA

ICRAF and Department of Forestry Management, Wageningen Agricultural University.
90 pp., 1 fig., 33 tables, 14 refs., 3 maps, 24 pp appendix.

A survey report of 61 household random samples from three villages of Mbiuni Location in Northern Machakos District. Reports the condition of grazing lands, woodlands, and cultivated lands. States the increasing pressure on the land leading to degradation of the natural environment, especially through erosion. Shows gullies in roads and grazing areas increasing in width and depth. Runoff causing problem in the well terraced cultivated area and recommends agroforestry to alleviate some of the constraints.

Machakos District/Mbiuni/Land use/Soil and land degradation/Terraces

MAN, LAND AND WATER IN EAST AFRICA

Discusses generally the different components and aspects of the hydrological cycle and the need to conserve water through dams, ground water and effective water use in East Africa. Also includes the relation of soil, water and vegetation.

Water harvesting

LAND SUITABILITY EVALUATION OF RED SOILS IN THE KILIFI-KWALE COASTAL AREA, KENYA

Paper describes the occurrence and distribution of red soils in the Kilifi-Kwale Coastal area. Discusses the results of land suitability evaluation study on red soils based on issues pertaining to land qualities, availability of moisture, nutrients and oxygen, susceptibility to soil erosion, availability of foothold for plants, and the possibility of mechanization.
181  GLOVER, H. 1953

SOME ASPECTS OF DRY ZONE FORESTRY


(not available for annotation)

Management practices/Forest management

182  GOSTA, A 1985

SOIL CONSERVATION IN KENYA - REPORT OF THE JOINT KENYA/SWEDEN SOIL CONSERVATION REVIEW MISSION OF 1985


Soil and water conservation/Training/Extension/Evaluation

183  GREAT BRITAIN, COLONIAL OFFICE 1939

A REVIEW OF THE POSITION IN REGARD TO SOIL CONSERVATION IN THE COLONIAL EMPIRE IN 1938

pp 7-17

An assessment of the soil erosion problem in Kenya and the methods of soil conservation in relation to mechanical measures, destocking, closing steep slopes, deforestation, contour banks, wash stops, grass burning, terracing, research, legislation and education.

USLE/Structural methods/Management practices/Policies/Closure
A STUDY OF LAND USE AND SOIL CONSERVATION ON A FARM IN MUKURWEINI DIVISION, CENTRAL KENYA

University of Stockholm, Department of Physical Geography
38 pp., 37 figs., 12 tables, 48 refs., appendix

Study investigates the results of different activities used to reduce soil erosion and to stop land degradation in a small farm in the high potential area of Nyeri District. Describes land use and soil conservation measures, and intensive cultivation carried out in this steepland farm, and examines their influence on erosion properties. Shows the bond between the technical and non-technical aspects of soil conservation.

Nyeri District/Mukurweini/Soil and water conservation/Land use

CONSERVATION OF WATER FOR STORAGE UNDERGROUND

In: E. Afr. Agric. J. 11: 139-144
1 table.

Deals with the different parts of the hydrological cycle and methods of utilizing surface runoff through increased infiltration, soil moisture, detention to conserve water and the improvement of ground water supply.

Water harvesting

ENVIRONMENTAL EDUCATION FOR NOMADIC PASTORALISTS


(not available for annotation)
GUILLARD, J. 1953

MEASURES POUR LA CONSERVATION DES SOILS AFRICAINS.
(CONSERVATION MEASURES FOR AFRICAN SOILS)

Sols Afr. 2:358-367 (in French and English)
5 plates

Briefly describes the soil erosion problem, the activities and history of the Soil Conservation Service of Kenya, its achievement in soil conservation work, especially of terracing in the Kikuyu lands of Central Kenya.

GoK/Terraces

GURNAH, A.M. 1975

ZERO TILLAGE

Kijani 1(2): 47-58
2 tables, 1 ref.

Discusses the effect of tillage on soil fertility porosity, soil loss and runoff, soil moisture and economic advantages.

Tillage/USLE/Physical properties/Chemical properties/Economic considerations

HAACK, B.N. 1983

LANDSAT DATA FOR RESOURCE ANALYSIS

In Soil and Water Conservation in Kenya - Proceedings of a Second National Workshop, Nairobi, March 10-13, 1982

Describes 10 types of landsat data and the use of landsat data in hydrology and pedology. It also lists the activities and the facilities of the Regional Remote Sensing Facility, Nairobi.

Aerial photo analysis
HAI, M.T. 1989

WATER HARVESTING AND RUNOFF HARVESTING IN MUTOMO, KITUI

5 pp., 3 tables.

Paper discusses the rationale and achievements of water harvesting and runoff harvesting in Mutomo, Kitui District. Analyses the potential for runoff harvesting systems data for Kitui District.

Kitui District/Mutomo/Water harvesting

HEADY, H.F. 1960

RANGE MANAGEMENT IN EAST AFRICA

Kenya Department of Agriculture and East African Agriculture and Forestry Research Organization. Government Printer, Nairobi 125 pp., 14 tables, 15 plates, ref.

Deals with the proper management of range lands in East Africa and the problems of overgrazing, improper planning, burning, bush control and reseeding grass lands.

Overgrazing/Reseeding

HEDFORS, L. 1981

EVALUATION AND ECONOMIC APPRAISAL OF SOIL CONSERVATION IN A PILOT AREA

Soil and Water Conservation Branch, Ministry of Agriculture 24 pp., 1 fig., 7 tables

Evaluates and quantifies the results of conservation inputs to farmers and society. Analysis based on three farm models and includes description of the area, conservation inputs, yields, costs, economic analysis, social appraisals and benefits. Shows soil conservation worth investment from the farmer’s and society’s point of view.

Socio-economic aspects
EVALUATION AND ECONOMIC APPRAISAL FOR SOIL CONSERVATION IN A PILOT AREA

2 tables.

Article gives a short account of the benefits of three hypothetical model farms and their difference in income and yield.

Economic considerations

SIDA TREE PLANTING PROJECT (KENYA) UNDER EVANGELICAL LUTHERAN CHURCH IN KENYA - PHYSICAL REPORT 1988.

SIDA
16 pp., 3 figs., 8 tables.

Report summarizes the activities of SIDA tree planting project in Kisii and South Nyanza Districts for the year 1988. The project was started to aid residents at the village level to enhance their wood-fuel needs, conserve soil in farms, provide income, and to stabilize soil fertility through agroforestry.

Kisii District/South Nyanza District/Agroforestry

EROSION IN THE WESTERN PART OF KISII DISTRICT

Training Project in Pedology, Kisii, Kenya. Preliminary Report No. 8 Agricultural University, Wageningen, the Netherlands.
115 pp., 23 figs., 28 tables

Report of a study on soil structural stability, surface sealing, and erosion of soil in the western part of Kisii District. Includes data on infiltration test, topography, vegetation, rainfall and soil profile description.

Kisii District/USLE/Soil erodibility/Physiographical parameters
HOGG, R. 1986
WATER HARVESTING IN SEMI-ARID KENYA: OPPORTUNITIES AND CONSTRAINTS

(not available for annotation)

Water harvesting

HOLMBERG, G. 1985

MEASUREMENTS OF YIELDS ON TERRACED FARMS AND NON-TERRACED FARMS IN KALIA SUBLOCATION IN KITUI DISTRICT

MALD, Soil and Water Conservation Division
13 pp., 2 figs. 4 tables

This study was undertaken to find the differences in yields between terraced and non-terraced farms, if any, and the effect of terracing on the content of soil nutrients. The study clearly describes the project methodology and the physical features of the area.

Kitui District/Terraces/Chemical properties/Soil productivity

HOLMBERG, G. 1985

SURVEY ON NUMBER OF FARMS NEEDING TERRACING IN KENYA OCTOBER 1983 - OCTOBER 1984

MALD, Soil and Water Conservation Branch
15 pp., 1 table

The draft is a survey of farms in Kenya that required terracing as was shown by the exercise conducted between October 1983 and October 1984. The draft gives brief notes on previous terracing activities distinguishing the good from the poor ones. It also contains tables of the farms that required terracing and those that did not.

Survey/Terraces
HOLMBERG, G. 1985

AN ECONOMICAL EVALUATION OF SOIL CONSERVATION IN KALIA SUB-LOCATION, KITUI DISTRICT

Ministry of Agriculture and Livestock Development
71 pp., 7 figs., 12 tables.

Study evaluates the soil conservation project with an aim of finding out the constraints hindering the farmer to carry out soil conservation. Has an economic evaluation on the result of soil conservation practice and its impacts on the individual farmer and society.

Kitui District/Kalia/Soil and water conservation/Socio-economic aspects

HOLMGREN, E., JOHANSSON, G. 1987

COMPARISONS BETWEEN TERRACED AND NON-TERRACED LAND IN MACHAKOS DISTRICT, KENYA
A Minor Field Study

SUAS, International Rural Development Centre
41 pp., 8 figs. 27 tables, 14 refs., appendix

The study compares the yields of maize and beans between terraced and non-terraced farms in Machakos district. The study presents a comprehensive background information of the district, details of the study methodology, and the soil characteristics.

Machakos District/Terraces/Soil productivity/Chemical properties/Physical properties

HOPKINS, G. 1944

REPORT ON MACHAKOS DISTRICT

Machakos District Commissioner’s Office (mimeographed)
27 pp., 1 map.

Report on the problem of erosion, land deterioration, the measures of reclamation, rehabilitation and resting. Includes the climate, people, animals, vegetation of the district.

Machakos District/Soil and land degradation/Reclamation
TECHNICAL EVALUATION OF SOIL CONSERVATION MEASURES IN EMBU DISTRICT IN KENYA
Report From a Minor Field Study

SUAS, IRDC
23 pp., 13 tables, 3 refs.

Study evaluates soil conservation activities in the Gachoka Division of Embu District. Study aims to: identify technical problems in connection with the soil conservation project; recommend solutions for those problems; identify successful technical measures. Gives a comprehensive summary of land use, the state of erosion, and both the cultural and mechanical methods of soil conservation.

Embú District/Gachoka/Soil and water conservation

CONTOUR CULTIVATION FOR BEGINNERS OF TERRACE MAINTAINANCE WITHOUT TEARS

Government Printer, Nairobi
19 pp., 35 figs.

A pamphlet to assist farmers in methods of constructing, maintaining and improving their terraces. It also includes grass strips, contour planting and other simple guides to farmers.

Terraces/Construction/Maintenance/Management

APPLIED SOIL CONSERVATION RESEARCH IN ETHIOPIA

DAE, SIDA
7 figs., 2 tables, 8 photos, 20 refs.

Paper has a short history of land degradation in Ethiopia and an outline of the efforts the Government of Ethiopia in combating the problem. Suggests that soil erosion in Ethiopia must focus on applied approaches based on ecological principles, so that bottlenecks emerging during implementation of soil conservation can be overcome.

Ethiopia/Soil and water conservation/Soil and land degradation
FIELD MOISTURE BALANCE IN SHIMBA HILLS

In: E. Afr. Agric. J. 18:139-145
1 fig., 2 tables, 3 refs.

Deals with the deficiency of water supply from the Shimba Hills as a result of change from forest land to grass land and the effects of overgrazing and fire on soil moisture loss by evaporation. Recomm­ends clearing of trees and shrubs from the margins of streams to conserve water.

Land use/Overgrazing/Water harvesting/Soil moisture

IMBIRA, J. 1985


(not available for annotation)

Soil and water conservation

IMBIRA, J. 1986

SOIL AND WATER CONSERVATION. SEMI-ANNUAL REPORT, 1986 (BPSAAP)

(not available for annotation)

Soil and water conservation
RUNOFF HARVESTING FOR CROP PRODUCTION IN SEMI-ARID AREAS OF BARINGO


Paper highlights the most important considerations in runoff harvesting for semi-arid areas such as that covered by BSAAP. Establishes a record of water harvesting systems in Baringo District, and how the various systems applied have evolved theoretically and practically. Describes in detail the design and maintenance of macro- and micro-catchment systems. Gives a map showing the areas of the district where soil conservation work is going on.

Baringo District/Macro-catchments/Micro-catchments/Design/Maintenance

WATER RESOURCES RECONNAISSANCE STUDY IN MACHAKOS DISTRICT

Ministry of Water Development, Nairobi.

(not available for annotation)

Water resources

THE CHALLENGE OF DEVELOPMENT: A CASE STUDY OF BARINGO SEMI-ARID AREA PROJECT (BSAAP), BARINGO, KENYA

(not available for annotation)

Baringo District
A CASE STUDY OF THE APPLICATION OF LANDSAT DATA FOR SOIL AND VEGETATION ANALYSIS IN RIFT VALLEY, WEST OF NAIROBI

2 tables, 10 refs.

Gives an example of the use of landsat data in soil and vegetation identification in the Rift Valley.

Survey/Soil types/Vegetation cover

SOILS OF THE MACHAKOS-KIBWEZI-KITUI-EMBU AREA, KENYA

Report on Soils of Project Area Chapter 3.2, pp. 52-71. 1 fig., 2 tables, 12 refs.

Study describes the environmental features of the area, soil, and soil physical properties such as bulk density and silt content. Also describes the soil chemical properties and presents the chemical data. It also analyses soil classification in Kenya.

Eastern Kenya/Soil types/Physical properties/Chemical properties

EROSION AND SOIL CONSERVATION


Describes the general state of erosion, the seriousness, the causes, including wind erosion, erosion survey, classification, estimate, forest, climate and conservation activities in Kenya.

Survey/Causes/Soil and land degradation/USLE/Soil and water conservation
17 JAEGER, R.M. 1974

A REPORT ON TECHNIQUES FOR MEASURING ROADSIDE EROSION IN THE LABORATORY AND IN THE FIELD WITH REFERENCE TO KENYA

Report to Transport and Road Research Laboratory, Silsoe College, Cranfield.

(not available for annotation)

USLE

18 JENSENS, J.W. 1986

A LANDSCAPE DEVELOPMENT PLAN FOR KAKAYANI, KENYA: LANDSCAPE PLANNING AND DESIGN WITH THE APPLICATION OF AGROFORESTRY IN THE REHABILITATION OF ERODED GRAZING LANDS.


(not available for annotation)

Agroforestry/Reclamation

219 JILDERDA, R. 1986

LOYAL WATER HARVESTING SCHEME, KAKUMA.

Turkana Development Support Unit.

(not available for annotation)

Turkana District/Water harvesting
JOHANSSON, K. 1981

SOIL, LAND AND RAINFALL CHARACTERISTICS OF IMPORTANCE TO SOIL EROSION IN ENDARASHA, NYANDARUA RANGE, KENYA

Department of Physical Geography, University of Stockholm

(not available for annotation)

Nyandarua District/Soil types/Rainfall characteristics

JOHNSTON, B.F., MUCHIRI, G. 1974

EQUIPMENT AND TILLAGE INOVATION FOR SMALL SCALE FARMERS IN KENYA, SOME UNANSWERED QUESTIONS (WITH SPECIAL EMPHASIS ON DRY LAND i.e. MEDIUM POTENTIAL AREAS)

IDS Working Paper No. 197, University of Nairobi.

Raises some questions on the development of tillage tools that can reduce runoff, increase infiltration and give better crop yield in dry areas.

Tillage/Water harvesting/Soil productivity

JORDAN, S.M. 1957

RECLAMATION AND PASTURE MANAGEMENT IN THE SEMI-ARID AREAS OF KITUI DISTRICT, KENYA


Describes the extent of soil erosion in Kitui District, the effect of overgrazing and methods of reclaiming bare eroded areas by planting, seeding grasses, grazing control, and limitation of stock.

Kitui District/Overgrazing/Reclamation/Revegetation/Reseeding
TILLAGE METHODS IN SOIL AND WATER CONSERVATION

Machakos District Agricultural Show, 1st-3rd July, 1982 Booklet. 3pp., 3 figs., 1 plate

Describes water as the important constraint in farming in the area and lists three ways of conserving the soil and water. It further describes in details, with figures, the different parts ox-drawn implements for proper tillage. Also gives recommendations for good soil management for both the short and long rains seasons.

Machakos District/Tillage

A STUDY OF MASS MOVEMENT IN KANGEMA AREA, MURANG'A DISTRICT, KENYA

Postgraduate Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi. 66 pp., 4 figs., 12 tables, 24 refs.

A project report on mass movement in Kangema Division, Murang'a District. Gives measurements on mass scar length, width, depth, slope angle, orientation and distance from crest. Data includes observation of slope forms, soil profile description, saturated hydraulic conductivity, moisture content, bulk density, liquid limits, farmers interview, assessment of existing conservation measures and erosional features.

Murang'a District/Kangema/Physiographical parameters/Mass movements/Measurements

SEMI-DETAILED SOIL SURVEY OF A PART OF BURA WEST FUELWOOD PLANTATION PROJECT


Survey covers human and physical environment of the area, and gives a description of the working methods of the survey - in office, field, and laboratory. Covers various aspects of soil properties - fertility, infiltration, hydraulic conductivity, bulk density, soil porosity, water retention and available moisture.

Bura/Socio-economic aspects/Physical properties/Chemical properties
KANANI, S.S. 1989

THE ROLE OF AGROFORESTRY IN THE DEVELOPMENT OF ARID AND SEMI-ARID LANDS (ASAL)


Paper maintains that the development of arid and semi-arid areas of Kenya presents a special development challenge due to its poor edaphic, variable climatic conditions and rapidly increasing population. Argues that, of the many available development options, agroforestry appears interesting given the potential of trees to conserve and improve the environment through its protective and productive roles.

Agroforestry/Socio-economic aspects/Multi-purpose trees

KANANI, S.S., HEMMING, C.F. 1982

GENERAL ASSESSMENT OF PROGRESS IN THE IMPLEMENTATION OF THE PLAN OF ACTION TO COMBAT DESERTIFICATION

Desertification Questionaire for Kenya, UNEP 29 pp., 17 tables.

This desertification questionnaire is compiled by NES. The questionnaire has three parts. Part I carries information on the main characteristics of the dry lands in Kenya. Part II deals with the status and trend of desertification, and part III contains data on activities to control desertification since the 1977 UN Conference on Desertification.

Land degradation/USLE/Management practices

KANYUA, H.A. 1984

COMPACTION OF AGRICULTURAL SOILS

M.Sc. Thesis, University of Southampton, Faculty of Engineering and Applied Science, Department of Civil Engineering, Institute of Irrigation Studies 63 pp., 20 figs., 3 tables, 3 plates, 56 refs.

Dissertation is a literature review on compaction of agricultural soils by vehicular traffic, and the conclusions that can be inferred from the literature. Argues that several theories, models and tests have been suggested to predict compaction but only the critical theory may provide an adequate model. Suggests better management of farm traffic and design changes in farm vehicles to reduce load and wheel slip and decrease the soil/tyre contact pressure, as the two basic approaches to minimize compaction.

Compaction/Tillage

DAE, SIDA
9 figs., 5 tables, 3 refs.

Paper discusses the relationship between land use trends and changes in the river regime. Analyses data on the river flow rates and describes the method used to determine the suspended sediment load. Concludes that intensive cultivation on fragmented land in Njoro River Catchment appear to lower the flow rate and increase suspended sediment concentration in the river.

Njoro/Land use/USLE

LOCAL ENVIRONMENTAL PERCEPTIONS AND CONSERVATION PRACTICES

Agricultural Administration 6(4): 299-304
Department of Sociology, University of Nairobi.

(not available for annotation)

Socio-economic aspects/Soil and water conservation

ASSESSMENT OF THE WATER CONSTRAINT TO MAIZE PRODUCTION IN SEMI-ARID KENYA

7 pp., 5 figs.

Paper contains graphs explaining the impact of inconsistent climate, especially rainfall, on land use patterns and farm production in general. Gives examples of crop-yield weather models concerning the population response in maize in Machakos District, and its interaction with rainfall and soil fertility, and, the variability of maize yield in Laikipia District, as influenced by plant population and cultivar maturity rating.

Machakos District/Laikipia District/Rainfall characteristics/Land use/-
INVESTIGATION INTO THE EFFECTIVENESS OF GRASS BUFFER STRIPS IN REDUCING SOIL EROSION

B.sc. Agric. Engng. Project Report, University of Nairobi. 48(62) pp., 11(12) figs., 2 tables, 10(13) refs.

Reports on the effectiveness of a 1 m wide grass strip in reducing soil loss compared to a control plot (no grass strip) on a 6% ground slope Kabete soil under simulated runoff. Report also includes field data.

Nairobi District/Kabete/Grass strips/USLE/Rainfall simulation

THE RELIABILITY OF THE MAIN RAINS IN KENYA

Discusses the seasonal distribution of rainfall in Kenya and gives a probability map of the 15 and 20 inches of rain per season for Kenya.

Rainfall distribution

A general paper covering erosion, resistance to erosion and susceptibility to surface sealing.

Nairobi District/Kiambu District/Soil erodibility/Rainfall characteristics
Project proposes to strengthen the capabilities of the Kenya Soil Survey in providing vital technical information on soil and other related land resources required by planners for multipurpose land use planning.

Policies

Deals with the principles of setting out and maintaining terraces, cutoff drains and grass waterways under different land slopes. It also gives tables to calculate vertical interval of terraces in relation to ground slope, terrace grade with distance and to calculate the depth and width of grassed waterways for different ground slope and area.

Layout/Maintenance/Structural methods

Discusses the objectives and two methods of terrace maintenance.
SOIL EROSION: A SIMPLE HOME MADE LEVEL FOR OBTAINING THE LINE OF CONTOUR BANKS

1 fig., 1 table

Describes the construction and use of a simple home made level for laying out contour lines and terraces.

Tools/Construction/Layout/Terraces

OVERSTOCKING IN KENYA
KENYA LAND COMMISSION REPORT


Estimates human and cattle population for 1932 and discusses the problem of overstocking in relation to land deterioration and the measures to reduce cattle population in the native reserves.

Overpopulation/Overgrazing

RUNOFF CATCHING AGRICULTURE (ONE WAY TO INCREASE CROP YIELDS AND REDUCE SOIL EROSION IN ARID AREAS)

C.D. and M.U. (xeroxed report)

(not available for annotation)

Water harvesting/Soil productivity
SOIL AND WATER CONSERVATION IN THE CHEMERON AND ENDAO CATCHMENTS, BARINGO DISTRICT

9 pp., 2 tables

Presents the erosion problem of the Chemeron Endao catchment Project and recommends the construction of gabion structures along the major river beds and "first order" catchments and check dams in gullies in critical sections of the upper catchments. Also gives layout and mechanical unit requirements.

Baringo District/Soil and land degradation/Gully control/Dams

AFRICAN LAND DEVELOPMENT IN KENYA


Soil and water conservation/Revegetation

ASAL - KITUI PROJECT REPORT

District Agricultural Officer, Kitui

(not available for annotation)
244 KENYA, MINISTRY OF AGRICULTURE, ASAL UNIT 1982

ASAL PREINVESTMENT STUDY: KITUI/EMBU/MERU. VOL. 1, SECTORAL INVENTORY

IDS/ASAL Unit Nairobi
142 pp., tables

(not available for annotation)

Policies

245 KENYA, MINISTRY OF AGRICULTURE, INTEGRATED AGRICULTURAL DEVELOPMENT PROGRAM 1978

MONITORING AND EVALUATION FOR ASAL PROJECTS

Nairobi.

(not available for annotation)

Evaluation

246 KENYA, MINISTRY OF AGRICULTURE, LAND AND FARM MANAGEMENT DIVISION 1978

POSITION PAPER ON SOIL CONSERVATION

IDS Occasional Paper No. 27, pp. 125-141

Report on the history of soil conservation in Kenya in relation to the activities of the soil conservation unit of the Ministry of Agriculture. Includes policy and regulation, structural set up, provincial and district activities and land tenure.

Policies/Soil and water conservation
NAROK AGRICULTURAL DEVELOPMENT PROJECT

Laon Application Report Vol. 3: Annex 7-16
KADOC No. 10188
119 pp., 43 tables

Includes an outline of the Narok District development programme, information on machinery requirement, crop and livestock production budgets, agricultural inputs, farm models and description of road conditions and requirements. Describes soil and water conservation programme, arrangements for transportation and marketing of organization and management of the project.

Narok District/Economic considerations/Soil and water conservation

SOIL CONSERVATION PROJECT 1982/83. ANNUAL REPORT

19 pp., 7 tables

The annual report states goals of the project, organization and staff, finance and funds, subsidizing policy and field work. It also carries targets and achievements in constructing cutoff drains, terraces, training, cooperation with other Government organizations, using hand tools, equipment and follow-up of the field work.

Policies/Structural methods/Training/Evaluation

RAINFALL FREQUENCY ATLAS OF KENYA

Water Department, Nairobi.
11 pp., 40 figs., 1 table

Gives maps of 5, 10, 15 and 100 years for the 10 and 30 minutes and 1, 2, 3, 6, 12 and 24 hours rainfall for Kenya and rainfall intensity-duration-frequency relationships for 49 stations.

Rainfall characteristics/Maps
REPORT OF THE WORKING GROUP ON SOIL EROSION

OP/NWS/200/091/95. Nairobi
24 pp.

(not available for annotation)

Soil and land degradation

THE INCIDENCE OF SOIL EROSION IN KENYA

Report of the Sub-committee on the National Environment Secretariat. 25 pp., 5 refs.

States the present situation of soil erosion on cultivated, grazed, and forest lands and summary of ongoing soil conservation activities. It also gives recommendations and proposes a plan of action as to the prevention of further degradation and reclamation of already eroded lands, training, educational and research and dissemination of information.

Land degradation/Soil and water conservation/Reclamation/Socio-economic aspects

REPORT OF THE NATIONAL SEMINAR ON DESERTIFICATION

Nairobi, 6-8 July 1977
18 pp.

Report of the seminar includes opening address, agenda of the seminar, list of documents prepared at the seminar, and resolutions of the seminar that include 1) definition of desertification, 2) extent of desertification in Kenya, 3) causes of desertification in Kenya - natural and man-made causes, 4) consequences of desertification, 5) measures to combat desertification, and 6) recommendations for national action.

Land degradation/Causes/Impacts/Soil and water conservation/Reclamation
KENYA'S EXPERIENCE IN COMBATING DESERTIFICATION

Prepared on the Occasion of the UN Conference on Desertification

33 pp.

Deals with the definition of desertification in the different ecological zones. Also deals with causes of desertification due to overgrazing, destruction of vegetation, lack of education, population pressure, improper revegetation. Describes methods of combating desertification by means of different appropriate land management systems. Includes recommendations for national action.

Land degradation/Causes/Management practices/Policies

DRAFT ENVIRONMENTAL PROFILE FOR NYERI DISTRICT

79 pp., 8 figs., 4 tables

Report of a study based on draft model for environmental assessment. Lists soil erosion, water pollution, devegetation (deforestation), agrochemical pollution, squatter settlements, waste disposal, conservation of historical sites and lack of fuel as the major environmental problems. Identifies slope, intensive cultivation and high rainfall incidence as aggravators of soil erosion. A discussion of types and causes of soil erosion and control measures of badly affected areas with suggestions is also included.

Nyeri District/Survey/Socio-economic aspects/Soil and water conservation/Soil erodibility

EXECUTIVE SUMMARY OF KAJIADO DISTRICT ENVIRONMENT ASSESSMENT REPORT.

68 pp., 11 figs., 19 tables and an appendix

Deals with the physical and human environment of the district. It analyses the impact of population and development on the environment, environmental trends and problem identification. Discusses the problem of soil erosion by wind and water. It recommends means such as destocking, physical means, afforestation, resting, prevention of steep slope cultivation, good farming practices and aid to pastoralists.

Kajiado District/Socio-economic aspects/Water degradation/Wind degradation/Soil and water conservation
This report contains a section on soil degradation and protection. Indicates sheet, rill and gully erosion as common in the area. Gives wild water and shifting cultivation as the major causes of erosion. It also deals with agents of erosion like overgrazing, burning, tree felling, and poor cultivation practices. Gives tables on areas mostly affected by soil erosion, and soil conservation measures undertaken between 1976-78. Gives some recommendations.

Kitui District/Water degradation/Land use/Management practices/Structural methods

Chapter 4 and 5 of this volume report on water and agriculture respectively. Chapter 4 deals with rainfall, runoff, sediment discharge of the five water sheds in Kenya and plans to develop them. Chapter five discusses the problem of erosion. It also deals with crop production and proper land use.

Rainfall characteristics/USLE/Soil and land degradation/Land use

Discusses the different acts like the Agricultural and Water Acts, their weakness, monitoring, enforcement, and gives some recommendations on soil conservation law, forest protection, shortage of manpower to enforce the law, inadequacy of the law, circumstances, proposal for legislative action and the rights of the individual.

Policies
KENYA'S FIGHT AGAINST SOIL EROSION

A Report of Kenya's First Anti-soil Erosion Week
18 pp., 12 plates

A pamphlet by NES covering a speech by the president, participation of the people, gabion work in Baringo, Kitui, Kajiado, check dams and terraces. Talks about activities of NES and also lists lessons gained such as erosion not being a new problem, awareness of the people, the many conservation measures underway, that no single approach is sufficient to do the job, the certainty on who should act on which way, lack of information and research and the need for action.

Policies/Socio-economic aspects/Dams/Terraces

A PROPOSED ACTIVITY FOR MONITORING LAND DEGRADATION WITH EMPHASIS ON SOIL EROSION
A Draft Plan of Action.

Discusses the importance of safeguarding natural resources in relation to the situation of soil erosion and the need to monitor soil loss. It outlines objectives and strategies of the proposed monitoring programme with emphasis on selection of pilot monitoring and gives a proposed outline for a pilot study and for preparatory case studies.

USLE/Land degradation

RECOMMENDATION FOR A NATIONAL PROGRAMME IN SOIL AND WATER CONSERVATION

The paper deals with the importance of soil and water conservation - the Presidential initiative, government responses and summary of present government and non-government efforts. Lists and discusses constraints and shortcomings in government efforts such as inadequate land use practices, insufficient training, lack of research programme, lack of popular perception, and inadequacies in legislation and enforcement.

Soil and water conservation/Policies/Socio-economic aspects
KENYA, PPCSCA 1982

KENYA'S EFFORTS TO CONSERVE SOIL, WATER AND FORESTS

Press Trust Printers Ltd., Nairobi.
39 pp., 14 tables, plates.

A booklet published annually by the Commission and containing the following sections: message from the President of the Republic of Kenya, a preface on soil as a resource and the role of the Commission on soil conservation and afforestation, erosion types, conservation measures, the need to conserve forests, and gives tables on number of seedlings and nurseries in each district, water conservation and work on the national water and soil conservation week.

GoK/Soil and water conservation/Nurseries

KENYA, PPCSCA 1983

KENYA'S EFFORTS TO CONSERVE SOIL, WATER AND FORESTS

Nairobi.
40 pp., 15 figs., 3 tables, 41 plates

This booklet contains nine sections dealing with: the need for conserving soil and forest, soil conservation activities, including pictures of different sites visited by journalists, the importance of watershed management, activities of the Commission and its achievements during 1982, forest conservation, seedling growing technique and a list of nurseries, planning on catchment basis, using hand levels, measuring vertical intervals, cutoff drains, the use and importance of design of gabions and earth dams.

Evaluation/Layout/Design/Nurseries

KENYA-AUSTRIA 1980

GROUNDWATER EXPLORATION IN THE TAITA HILLS AND MOMBASA SOUTH COAST AREAS

submitted to the Ministry of Water Development and Ministry of Natural Resources, Nairobi/Kenya.
Austromineral Ges. m.b.H., Vienna Austria, October 1980.
332 pp., 99 figs., 31 tables.

The study is divided into four parts. Part I tackles project objectives, work scope and execution. Part II and III explore the basic natural setting and conditions, geophysical survey programme, water drilling and well construction, water testing results and borehole evaluation in the project area. Part IV gives conclusions and recommendations for the project.

Taita-Taveta District/Water resources/Wells
STATED MADE BY THE DEPUTY LEADER OF THE KENYA DELEGATION AND KENYA'S PERMANENT REPRESENTATIVE TO UNEP ON THE UN CONFERENCE ON DESERTIFICATION

Nairobi, 31 August 1977
8 pp.

States the problem of desertification in Kenya and measures taken to combat desertification.

Land degradation/Soil and water conservation

FARMERS PERCEPTION / ACCEPTANCE OF WATER AND SOIL CONSERVATION TECHNIQUES


Paper presents the results of a survey on the attitude of small holders towards conservation so as to recommend water and soil conservation techniques in Kalau and Matanya in Laikipia District. Paper states the objectives of the survey and the methodology used, as well as analysing and illustrating farmers' perception on water and soil conservation technologies. Gives recommendations on how farmers could accept more new water and soil conservation techniques.

Laikipia District/Socio-economic aspects/Soil and water conservation


National Arid Lands Research Centre, Marsabit.

(not available for annotation)
268 KEYA, S.O. 1980

LAND USE CAPABILITY, SOILS AND SOIL MANAGEMENT WITH RESPECT TO AGROFORESTRY ENTERPRISES

17 pp., 1 fig., 6 tables.

Paper discusses land use capabilities in relation to soils and soil management aspects. Points out that studies of soil erosion problems show that good management techniques are important in reducing soil loss, and as such, mulching, mixed cropping and increasing plant densities, can reduce erosion substantially. States that crop management might not be effective where soils are shallow, slopes are high, and with erratic rainfall.

Land use/Mulching/Mixed cropping/Soil depth/Slope angle

269 KRHODA, G.O. 1988

WATER RESOURCES CONSTRAINTS AND PROSPECTS FOR AGRICULTURAL AND INDUSTRIAL DEVELOPMENT TOWARDS THE YEAR 2000 A.D.


2 figs., 9 tables

Paper examines the water resources potential of Kenya in order to assess the current and projected demand for agricultural and industrial uses, and discusses the prospects and constraints that are likely to influence the trend of development. In anticipation of agricultural and industrial expansion, the paper concludes that Kenya is endowed with sufficient water resources, however the problems that arise from their development such as environmental degradation and health problems need be tackled.

Water resources

270 KIBAGE, D.M. 1979

A SURVEY OF GULLY EROSION AT LONGONOT

Post Graduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi

42 pp., 3 figs., 8 tables, 8 refs., appendix

Reports the influence of cultivation practices, catchment areas of roads, paths and road runoff on gully formation together with soils, rainfall and catchment area and effect of settlement on the increased gullying.

Survey/Gully erosion/Physical infrastructures/Soil types/Rainfall characteristics
271 KILAVIKA, C.I. 1975

AN EXAMPLE OF A SUCCESSFUL PRACTICAL SOIL CONSERVATION SCHEME AT TIMBILIL

Tea in East Africa 15(2):19-20

Article discusses a practical step taken in soil conservation following the manual clearing of forest for small scale tea plantation. Emphasizes the importance of constructing waterways deep enough, well ahead of schedule and established long before they are expected to take the discharge from the bunds.

Kericho District/Timbilil/Deforestation/Waterways/Terraces

272 KILEWE, A.M. 1984

PHYSICAL PROPERTIES OF SOILS IN RELATION TO EROSION

E. Afr. Agric. For. J. 44:242-246 (special issue)
4 tables, 10 refs.

Gives the influence of soil structure, degree of aggregation, texture, organic matter, moisture content, density and compactness on erosion. Compares the physical properties at Katumani and Muguga soils. Provides erosion index for the two soils based on dispersion erosion ratios for the profile depth of 10, 30, 60 and 100 cm.

Physical properties/Chemical properties/Soil erodibility/Soil depth

273 KILEWE, A.M. 1985

MEASUREMENT AND PREDICTION OF SOIL EROSION IN KIAMBU AND MURANG’A DISTRICTS OF KENYA

NES, ETMA, USAID

Discusses the assessment of soil loss in Kiambu and Murang’a districts in Central Province of Kenya including a comparison of measured soil loss by site, measured and estimated soil loss by site, and average measured and estimated soil loss by crop. Report also evaluates the reliability of soil traps for measuring soil loss as compared with run-off plots.

Prediction/USLE/Run-off plots
KILEWE, A.M. 1986

SOIL AND WATER MANAGEMENT: NATIONAL RESEARCH PRIORITIES

DAE, SIDA
12 refs.

Discusses the research needs in prediction of soil erosion rates, effect of erosion on soil productivity, high potential regions, arid and semi-arid regions, forest lands, rangelands, and soil and water management policy including manpower requirements.

Prediction/Soil productivity/Tillage/Policies

KILEWE, A.M. 1987

PREDICTION OF EROSION RATES AND THE EFFECTS OF TOPSOIL THICKNESS ON SOIL PRODUCTIVITY

323 pp., 31 figs., 45 tables, 174 refs., 8 plates, 2 appendices.

Thesis determines the quantitative parameters for predicting soil loss using the Universal Soil Loss Equation (USLE) and the effects of topsoil thickness on soil productivity. It also discusses the mechanics, processes, and the assessment of soil erosion.

USLE/Run-off plots/Prediction/Soil productivity

KILEWE, A.M. 1988

SOIL EROSION AND THE ROLE OF AGROFORESTRY PRACTICES IN SOIL CONSERVATION

2 tables

Discusses the processes of soil erosion, causes of soil erosion, impact of soil erosion, agroforestry practices for soil conservation, and identifies research needs for the development of sustainable and productive land-use systems.

Soil and land degradation/Causes/Soil and water conservation/Agroforestry

Soil productivity
SOIL AND WATER MANAGEMENT: NATIONAL RESEARCH PRIORITIES

DAE, SIDA
12 refs.

Discusses research requirements for prediction of soil erosion rates, determining the effect of erosion on soil productivity, determining the potentials and limitations of soils in high potential regions, determining the effectiveness of rainfall in arid and semi-arid regions, and determining the basic factors that influence the effectiveness of soil and water management policies.

USLE/Soil productivity/Physical properties/Policies

LAND DEGRADATION IN KENYA - A COUNTRY PROFILE

A Draft Report Prepared for the Commonwealth Secretariat
8 figs. 18 tables, 16 refs., 2 annexes

The report assesses the nature, extent, causes and effects of land degradation in Kenya as a prerequisite to generating technologies for a sustainable agriculture. The report has perspectives on land tenure, policy initiatives for combating land degradation.

Rainfall distribution/Causes/Impacts/Policies

EVALUATION OF SUITABLE RAINFALL EROSIVITY FACTORS FOR THE SEMI-ARID REGION OF KENYA

Kenya Journal of Science and Technology
2 figs., 15 tables, 34 refs.

Evaluates 28 rainfall erosivity factors and develops regression equations for predicting the USLE erosivity factor (EI30) from other erosivity factors that are much simpler to compute.

Soil erodibility/Rainfall intensity/Rainfall kinetic energy/Erosion-factors
EVALUATION OF CROP COVER AND RESIDUE MANAGEMENT C FACTORS FOR CROPPING SYSTEMS AND MANAGEMENT TECHNIQUES IN THE SEMI-ARID REGION OF KENYA

Kenya Journal of Science and Technology.
7 tables, 19 refs.

Evaluates the crop cover and residue management C factors for maize with minimum tillage, maize with 3 tonnes per hectare of maize residue, maize with conventional tillage, beans alone, and maize intercropped with beans on alternate rows.

Crop vegetation cover/Tillage/Mulching

THE EFFECTS OF CROP COVER AND RESIDUE MANAGEMENT ON RUNOFF AND SOIL LOSS


Evaluates the effects of maize with minimum tillage, maize with 3 tonnes per hectare of maize residue, maize with conventional tillage, beans alone, maize intercropped with beans on alternate rows, and bare fallow on ground cover development, runoff, and soil loss.

Vegetation cover/Run-off plots/Prediction/Tillage

EVALUATION OF SOIL ERODIBILITY FACTORS USING NATURAL RUNOFF PLOTS

1 fig., 4 tables, 26 refs.

Determines the relative soil erodibility values for the luvisol around Katumani using natural runoff plots and evaluates the effect of rainstorm magnitude on soil erodibility.

Soil erodibility/Erosion factors/USLE/Luvisols
SOIL PHYSICAL CHARACTERISTICS AND THEIR APPLICATION TO AGRICULTURE

KILEWE, A.M., ULASKER, L.G. 1984
E. Afr. Agric. For. J. 44: 247-256 (special issue)
8 figs., 5 tables, 6 refs.

Compares soil physical properties, i.e., bulk density, texture, organic matter, soil moisture release characteristics, total pore space, water holding capacity of soils from four fields of two locations and their effect on plant growth. Suggests the method as a good identifier of drier areas that may be suitable for agriculture.

Physical properties

TOPOGRAPHIC MODIFICATION OF LAND TO CONCENTRATE AND REDISTRIBUT RUNOFF FOR CROP PRODUCTION

KILEWE, A.M., ULASKER, L.G. 1984
E. Afr. Agric. For. J. 44: 257-265 (special issue)
6 figs., 3 tables, 8 refs.

Gives the effects of contour furrows (conventional beds), wide furrows, mini-benches and flat beds, under maize, and minimum tillage on crop yield, runoff retention, available moisture at 30, 60 and 100 cm depths during 1982 and 1983. Result indicates that apart from the flat beds, the rest retained all runoff and the wide furrows gave significantly greater yields and high water use efficiency.

Management practices/Water harvesting/Soil productivity/Physiographical parameters

SOIL EROSION: A THREAT TO LAND RESOURCES

KILEWE, A.M., ULASKER, L.G. 1984
E. Afr. Agric. For. J. 44: 203-209 (special issue)
25 refs.

Discusses the problem of soil erosion, with special emphasis on the semiarid areas. Prediction of soil loss with the USLE and methods of determining the different factors in the equation are described. Loss of soil productivity, plant nutrients and water pollution are given as some of the problems caused by erosion.

Land degradation/USLE/Soil productivity/Nutrient loss
286 KILEWE, A.M., & MBUVI, J.P. (In press)
THE EFFECT OF TOPSOIL REMOVAL ON SOIL PRODUCTIVITY

Kenya Journal of Science and Technology
14 figs., 5 tables, 9 refs.

Determines the effect of removal of different depths of topsoil on soil productivity using maize as a test crop with different rate of fertilizer and manure application.

Run-off plots/Soil productivity/Fertilizer/Manure

287 KIMENYE, D. 1989
POTENTIAL FOR EROSION BY DIFFERENT TYPES OF LIVESTOCK

4 pp., 10 refs.

Paper argues that soil erosion caused by wind and water mainly, is aided by man and his animals. Discusses the impact of trampling on vegetation and selective feeding habits of different livestock species in various seasons to soil erosion.

Water degradation/Wind degradation/Compaction/Overgrazing

288 KIMUTAI, J.N. 1979
A SURVEY OF EFFECTIVENESS OF CUTOFF DRAINS AND GRASS STRIPS AS SOIL CONSERVATION MEASURES IN TULOI, KAPKANGANI LOCATION, NANDI DISTRICT

Post Graduate Diploma Report Project, University of Nairobi, Department of Agricultural Engineering, Nairobi.
78 pp., 8 figs., 16 tables, 7 refs.

A project report on the effectiveness of cutoff drains and grass strips in preventing soil erosion in Tuloi, Nandi District. Report is based on interview of farmers and survey of cutoff drains and grass strips. Appendix gives field data.

Nandi District/Tuloi/Survey/Cut-off drains/Grass strips
KINAMA, J.M. 1981

A STUDY ON SEDIMENTATION AND ITS CAUSES IN SURFACE RESERVOIRS IN A SEMI ARID AREA OF TULIA IN KITUI DISTRICT, KENYA

Post Graduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi.
41 pp., 4 figs., 7 tables, 11 refs., 2 fold maps


Kitui District/Tulia/USLE/Overgrazing/Dams

KINAMA, J.M. 1985

SOIL AND WATER CONSERVATION IN ARABLE AND PASTURE DRYLANDS IN KENYA


The paper discusses those problems posing potential dangers to soil and water resources in arable and pasture drylands in Kenya. The paper also summarises ways of conserving soil and water in arable drylands.

Causes/Soil and water conservation

KONUCHE, P.K.A. 1983

EFFECTS OF FOREST MANAGEMENT PRACTICES ON SOIL AND WATER CONSERVATIONS IN KENYA FORESTS


Discusses the main forest management practices like site preparation, tending, pruning, thinning, harvesting, and forest protection.

Forest management
KRHODA, G.O. 1986

SOME PROPERTIES OF GEOMORPHOLOGICAL SYSTEMS AND THE GEOPHYSICAL RECORD: A DISCUSSION OF THEIR RELATIONSHIP IN LANDSCAPE EVALUATION

Seminar Paper, Geography Department, University of Nairobi, 1986.

Paper discusses geomorphological systems with a view to relate them to the properties of geographical record. Results of the study show that amongst the geomorphological systems, such as morphological, process-response and control systems, only morphological systems are better understood. Maintains that threshold and feedback mechanisms which govern their behaviour introduce complications in the resulting functionalism, whereas geophysical record is time and space specific.

Related literature

KRHODA, G.O. 1987

LONG-TERM MONITORING OF SOIL EROSION AND OTHER FORMS OF LAND DEGRADATION

Nomograph, Department of Geography Staff Seminar Series, University of Nairobi 12 pp.

Paper argues that though Kenya has not been left behind in pointing out man's impact on environment, there has been slow progress towards establishing long-term monitoring system of the ecosystem, soil and water erosion, population shifts and productivity. Paper evaluates the need for setting up such a system including the understanding of the geodynamical systems and evaluation of sustainable development. Discusses four methods of monitoring geomorphological and hydrological processes.

Soil and land degradation/Water loss monitoring/Measurements

KRHODA, G.O. 1988

AN ANALYSIS OF HYDROLOGICAL CHANGES CONSEQUENT LAND USE CHANGE IN MAU HILLS IN KENYA


Gives an analysis of the hydrology of the Mau Hills Forest Reserve in order to evaluate the effects of land use change from forest to agriculture. Argues that favourable climatic conditions and a growing population have contributed to the conversion of forests into farmlands. An analysis of floods and water balance of five catchments in the area shows that the frequency and magnitude of floods have had little change. Shows that rate of land degradation varies with geology, topography and land use.

Mau Hills Forest/Deforestation/Land use/Flooding
WATER SUPPLY IN KENYA TODAY AND TO THE YEAR 2000 A.D.

4 figs., 15 tables

Study analyses the current adequacy of water supply in Kenya in order to project future demands and problems that may likely occur in the year 2000. The types of water supply, the expected benefits and factors that control the level of service are discussed. Surface and groundwater resources are assessed and their implications for future trends in water supply are discussed.

Related literature

FLOW DEVELOPMENT AND INTERACTION IN ALLUVIAL OPEN-CHANNEL BEND SERIES WITH VARYING CURVATURE COMBINATIONS

5 pp.

An investigation was conducted to study flow development and interaction in single and consecutive alluvial open-channel bends with curvature ratio combinations of $1.0 < \theta < 4.7$. Detailed measurements of mean velocity, current direction and channel bed topography were collected from ten or more cross sections in each bend. Three regions of flow development were determined, namely the straight entrance portion, the region between $30 < \theta < 60$ and $\theta > 100$, where $\theta$ is the angle of bend curvature.

PROBLEMS OF SEDIMENT CONTROL AND MANAGEMENT IN URBAN AREAS

DAE, SIDA
1 table, 8 refs.

Paper evaluates the point sources of sediment, and assesses the rates of soil erosion from roads, pathways, and construction sites in Nairobi. Discusses the results and compares the data to those from rates of ordinary soil erosion on rural catchments. Also discusses proposals for government regulation and prospects for further research.
LATERAL EROSION OF RIVERS

DAE, SIDA
10 figs., 21 refs.

Paper discusses and evaluates the factors that cause lateral erosion. Presents a case study of the meandering reaches of Lower Tana River, to relate some of the factors that cause lateral erosion to channel morphology. The second part of the paper discusses the influence of vegetation and channel erosion to the Lower Tana River.

Channel erosion/Vegetation cover

KENYA, SEEKING REMEDIES FOR DESERT ENCROACHMENT

Span (UK) 24 (2):53-56, 89, 91, 93
(not available for annotation)

Soil and land degradation

LANDSLIDES IN THE MOUNTAIN AREAS OF KENYA: CAUSES, EFFECTS AND REHABILITATION. COMPARATIVE STUDIES OF DIFFERENT SLOPES WITHIN THE NYANDARUA RANGE

75 pp., 13 figs., 34 refs.

A research project done to evaluate mass movements as agents in the geomorphologic evolution of the landscape, and their contribution to soil erosion in a humid tropical environment. Draws a special relationship between increase in landslides and increase in land use. Discusses scientific background and classification of landslides, topography, vegetation and land use, water inflow and water in the soil, and soils.

Mass movements/Land use/Physiographical parameters/Vegetation cover/-Soil types
LARSSON, M. 1989

LANDSLIDES IN THE MOUNTAIN AREAS OF KENYA: COMPARATIVE STUDIES OF DIFFERENT SLOPES WITHIN THE NYANDARUA RANGE


DAE, SIDA

1 table, 27 refs.

Paper summarises the findings of a study on landslide occurrences within Nyandarua Range in relationship to changes in land use.

LAWES, E.F. n.d.

AN ANALYSIS OF SHORT DURATION RAINFALL INTENSITIES


(not available for annotation)

LEWIS, J.G. 1977

REPORT OF A SHORT TERM CONSULTANCY ON THE GRAZING ECOSYSTEM IN THE MT. KULAL, NORTHERN KENYA


Reports results of three months study of the grazing ecosystem dealing mainly with desert encroachment. It describes the quality of vegetation, the problem of overgrazing, possibility of vegetation recovery and gives recommendations on reducing cattle.
LAND DEGRADATION MONITORING PROGRAMME OF THE NATIONAL ENVIRONMENT AND HUMAN SETTLEMENTS SECRETARIAT

Ministry of Environment and Natural Resources, Kiambu District, Kenya

first Pilot Study.

Clark University International Development Programme

41 pp., 3 figs., 14 tables, 10 refs.

Deals with the programme of NEHSS, to monitor land degradation in Kiambu District. Gives method of data collection, soil loss and agricultural activities especially of land use and assessing soil loss using the USLE. Soil loss values, established and actual, are given for 24 sites. Erosion due to quarries and assessment of extent and control of gully erosion are included.

Kiambu District/Land use/USLE/Physical infrastructures/Gully erosion

THE EROSION MONITORING PROGRAMME OF THE NATIONAL ENVIRONMENT SECRETARIAT


Describes the steps taken to monitor soil erosion in Kiambu District including preparation of maps, reconnaissance, land degradation observation, installation of five recording rain gauges and 28 soil traps.

Kiambu District/Maps/Measurements

PROGRESS REPORT ON ASSESSING SOIL LOSS IN KIAMBU AND MURANG’A DISTRICTS

In Monitoring Soil in Kiambu and Murang’A Districts, Kenya Progress Report 1982-83

National Environment Secretariat

34 pp., 6 figs., 6 tables, 14 refs.

The report compiles the findings of a study carried out to assess soil erosion in cultivated slopes exceeding 11 degrees in Kiambu and Murang’A districts. The paper analyses data on: estimating rainfall erosivity, estimating crop cover and conservation practice factors, and the slope-length factors.

Kiambu District/Murang’A District/Physiographical parameters/USLE
LEWIS, L.A. 1985
ASSESSING SOIL LOSS IN KIAMBU AND MURANG'A DISTRICTS, KENYA
(not available for annotation)
Prediction

LINDGREN, B.M. 1988
ECONOMIC EVALUATION OF A SOIL CONSERVATION PROJECT IN MACHAKOS DISTRICT, KENYA
A Minor Field Study
SUAS, IRDC Working Paper No. 95.
35 pp., 15 tables, 28 refs., 19 appendices.
Report makes an economic evaluation of the SIDA sponsored soil conservation project in Machakos District, both from society's and from the farmer's point of view. Does an on-farm conservation analysis that concludes that farmers get a return of their labour input which they expend in conservation work.

Machakos District/Evaluation/Economic considerations

LINIGER, H. 1988
WATER CONSERVATION FOR RAINFED FARMING IN THE SEMI-ARID FOOTHILLS WEST AND NORTHWEST OF MT. KENYA: CONSEQUENCES FOR SOIL PRODUCTIVITY
Mountain Research and Development, Vol. 8 Nos. 2/3 pp. 201-209.
6 figs., 2 tables, 17 refs.
Paper argues that in semi-arid highlands west and northwest of Mt. Kenya, the recent immigrant farmers are facing problems of limited water resources. Further argues that recurrent crop failure and low production on grazing land shows the dangers of lack of water conservation measures. States that the Laikipia Research Programme water conservation project short term task is to increase yields in earth growing period, and the long term aim is to sustain natural resources such as soil fertility.

Water harvesting/Soil productivity
LINIGER, H. 1989

RESEARCH ON WATER AND SOIL CONSERVATION IN THE SEMI-ARID HIGHLANDS OF LAIKIPIA

DAE, SIDA
6 figs., 15 refs.

The paper describes the research of a water conservation project designed to: evaluate the influence of different farming methods on water and soil loss; assess water balance in relation to land use, soil erosion and productivity; assess problems of different water conservation methods for small scale farmers.

Management practices/Water harvesting/USLE/Land use/Soil productivity

LINIGER, H. 1989

WATER CONSERVATION IN THE SEMI-ARID HIGHLANDS OF LAIKIPIA - EMPHASIS ON SHORT AND LONG TERM IMPROVEMENT OF THE WATER AND SOIL RESOURCE USE

25 pp., 19 figs., 3 tables, 18 refs.

Paper presents the major results of an applied water conservation study carried out from 1985 to 1988, and evaluates its importance for the Mt. Kenya area. Study aims at assessing the importance and the possibilities of improving rain water use through water conservation measures. Summarizes ASAL efforts of introducing drought and cold tolerant crops in the semi-arid highlands.

Laikipia District/Mt. Kenya/Water harvesting

LINIGER, H. 1989

WATER CONSERVATION FOR RAINFED FARMING IN THE SEMI-ARID FOOTZONE NORTHWEST OF MT. KENYA (LAIKIPIA HIGHLANDS)
Consequences on the Water Balance and the Soil Productivity

6 pp., figs.

Study aims to assess the importance and the possibilities of improving rain water use with water conservation measures, for the semi-arid highlands west and northwest of Mt. Kenya. Lays special emphasis on water balance of different landuse methods, assessed using field experiments.

Water harvesting/Land use/Run-off plots
MBURU, C.N. 1984

SOIL AND WATER CONSERVATION AND AGRICULTURAL MACHINERY TECHNOLOGY FOR THE NATIONAL EXTENSION PROGRAMME.

Ministry of Agriculture and Livestock Development, Central Province. 32 pp., 4 appendices.

Study illustrates and analyses the purpose of soil conservation structures in holding water runoff from gathering enough speed to erode land. Highlights the important agronomic measures which would help to conserve soil and water. Gives some recommendations on how to avoid soil erosion in the pastures. Lists the ways through which agroforestry helps the farmer. Gives an extensive table on the type of farming technologies that would need to be criticised or modified to suit the farmers.

Structural methods/Management practices/Agroforestry

MBURU, D.M. 1983

STUDY OF SOIL EROSION ASSOCIATED WITH NEW SETTLEMENTS IN THE LONGONOT KIJABE AREA OF KENYA, AND PROPOSALS FOR ITS CONTROL.

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering. 106 pp., 8 figs. 6 tables, 7 plates, 7 maps, 32 refs.

Gives detailed field observations, differential survey and air photo analysis used to examine soil erosion problems in a newly settled catchment area at Maai-Mahiu, Kijabe.

Aerial photo analysis/Land use/Land degradation

MBURU, D.M. 1989

THE ROLE OF SAND DAMS IN WATER SUPPLY IN ARID AREAS


Paper presents the results of a case study carried out in a part of Machakos District to evaluate the role of sand dams on water supply for domestic and livestock use within a catchment of 67 km2. Determines the extractable volume of water in one sand dam, and the monthly water use by both people and livestock.

Machakos District/Water harvesting/Dams
MBURU, J.K. 1989 DAE

OVERVIEW OF SOIL AND WATER CONSERVATION AND WATER HARVESTING IN KENYA

12 pp., 5 refs.

Paper gives an outline of severity of soil erosion in Kenya, and discusses the benefits of soil conservation, and its relationship with water conservation. Also discusses the progress in water harvesting in Turkana, Baringo and Kitui Districts, and the purposes to which water harvesting is made use of.

Soil and land degradation/Soil and water conservation/Water harvesting

MBUVI, J.P., WOKABI, S.M. 1984 KSS

THE RELATIONSHIP BETWEEN SOILS, GEOLOGY AND RELIEF IN PART OF THARAKA AREA.


(not available for annotation)

Soil types/Physiographical parameters

MCGARITY, J.W. 1980

REPORT ON SOILS AND SOILS MANAGEMENT ON THE MAGARINI LAND SETTLEMENT SCHEME, MALINDI, KENYA

Mcgowan International, Albury, NSW, Australia.

(not available for annotation)

Soil types/Management practices
LAND USE IN KENYA AND TANZANIA, A BIBLIOGRAPHY

Stockholm, Sweden Royal College of Forestry
152 pp.

An author alphabetical order of references on land use in Kenya and Tanzania, in a very broad term. Covers agriculture, animal husbandry, forestry, wildlife utilization, physical and biological factors affecting the potential for land use such as soil condition, geology, geomorphology, ecology, land tenure and socio-economic aspects of land utilization.

Land use

COMBATTING DESERTIFICATION AND REHABILITATING DEGRADED PRODUCTION SYSTEMS IN NORTHERN KENYA

141 pp., 38 figs., 14 tables, 48 refs.

A five years research report stating the present situation and the influence of modern civilization on increased human and cattle population and increased sedimentation, overgrazing and land deterioration. Report emphasizes the need to rehabilitate degraded lands through reduction in livestock numbers, redistribution of grazing pressure, water development and marketing. Details on human ecology, livestock, vegetation, disease, geomorphology, soils and climate, education, training and demonstration are given.

Socio-economic aspects/Causes/Impacts/Reclamation/Soil erodibility

COMBATING DESERTIFICATION AND REHABILITATING DEGRADED PRODUCTION SYSTEMS IN NORTHERN KENYA: THE IPAL PROJECT

Desertification Control No. 10:29-36
1 fig., 4 tables, 9 refs., 4 plates

Describes the IPAL Project in Northern Kenya, Marsabit Area, its goals and approach in combating desertification and improving range lands of the Boran, Rendille, Gabra and the Turkana people. Gives data on population of the four ethnic groups, livestock and wildlife and density. Changes in land use and settlement patterns are discussed. It also provides preliminary recommendations.

Marsabit District/Land degradation/Reclamation/Socio-economic aspects/-
LYNAM, J.K. 1984

AN ANALYSIS OF POPULATION GROWTH, TECHNICAL CHANGE, AND RISK IN PRESENT, SEMI-ARID FARMING SYSTEMS: A CASE STUDY OF MACHAKOS DISTRICT, KENYA

Dissertation to the Food Resources Institute and the Commonwealth on Graduate Studies of Stanford University.

(not available for annotation)

Machakos District/Evaluation

MACKLIN, W., RESHID, K., JAMA, B. 1989

RESULTS OF ALLEY-CROPPING EXPERIMENTS WITH LEUCAENA LEUCOCEPHALA AT THE KENYA COST: AN EXAMPLE OF AN APPROPRIATE SOIL CONSERVATION (FERTILITY) MEASURES


DAE, SIDA

3 figs., 2 tables, 5 refs.

Paper gives results of alley-cropping spacing trials at Mtwapa centre, designed to establish trends in crop and tree performance under various planting arrangements and densities for the 1986 long-rains maize crop. Paper states that the major objective of the trials was to get information on which tree species, and which management practices to use in alley-cropping systems to give maximum economic benefits from the farm.

Alley-cropping

MAHANE, W.C. 1979

SOIL EROSION ALONG THE NARO MORU TRACK - A WESTERN APPROACH TO MOUNT KENYA

E. Afr. Agric. For. J. 45(2) 158-166
7 pp., 4 figs., 2 tables, 20 refs.

Deals with the impact of human and animal (elephants and buffaloes) movement on the removal of vegetation cover and soil loss in the lower Afroalpine Zone of Mount Kenya. It describes the soil profile, particle size and warns that if human and animal traffic continue to increase along the Naro Moru track, soil erosion is likely to accelerate.

Compaction/Physical properties
MÄHER, C. 1935

A PARTIAL SURVEY OF THE AGRICULTURAL RESOURCES AND POTENTIALS OF THE WEST SUK RESERVE TOGETHER WITH NOTES ON THE GENERAL STATES OF PRESERVATION AGRICULTURALLY AND PASTORALLY OF THE AREA

Department of Agriculture, Nairobi
26 pp.

(not available for annotation)

Survey

MÄHER, C. 1936

AN INEXPENSIVE WOODEN DRAG FOR USE IN THE CONSTRUCTION OF MANGUM BROAD BASED TERRACES

E. Afr. Agric. J. 1:311-313
1 fig.

Describes the details of the wooden U-drag implement used in the construction of graded broad based terraces.

Tools/Construction/Terraces

MÄHER, C. 1936

MULCHES

E. Afr. Agric. J. 1:415-420
2 tables, 10 refs.

Discusses the use of dust and vegetative mulches in reducing soil temperature and conserving soil moisture and reducing erosion.

Mulching/Soil and water conservation
SOIL EROSION AND LAND UTILIZATION IN THE KUMANASIA, NJEMPS AND EAST SUK RESERVES

Department of Agriculture, Nairobi.
140 pp., 66 gigs.

A report on the topography, soils, climate, history, land tenure, population (human and cattle), crops, cultivation, soil erosion and land utilization, grazing, forest, water supplies, land reclamation of the Kamasia, Njemps and East Suk Reserve.

Physiographical parameters/Soil types/Land use/Rainfall characteristics

SOIL EROSION AND LAND UTILIZATION IN THE UKAMBA RESERVE (MACHAKOS)

Department of Agriculture, Nairobi.
44 pp., 12 tables

A lengthy report on land use and the problem of soil erosion in Machakos. Covers topography, soils, climate, land tenure, soil erosion, forests, water supplies, land reconditioning and soil erosion controlling methods such as stagger trenching, closing of areas to stock, terracing, afforestation, gully control and destocking.

Machakos District/Soil types/Land use/Land degradation

SOIL EROSION AND LAND UTILIZATION IN THE UKAMBA (KITUI) RESERVE. PART 1.

Colony and Protectorate of Kenya, Department of Agriculture (mimeo)
219 pp., 86 plates, 1 map

Report covering the topography, soils, climate, history, land tenure, population, shifting cultivation, animal husbandry, forest, water supplies, roads, and soil erosion of Kitui Reserve.

Kitui District/Land use/Soil types/Rainfall characteristics/Physiographical parameters
MAHER, C. 1937
SOIL EROSION AND LAND UTILIZATION IN THE UKAMBA (KITUI) RESERVE
PARTS 2 AND 3
Colony and Protectorate of Kenya (mimeo)
101 pp., 19 tables, 97 plates, 5 maps and 1 fold map
A report dealing with the forest, water supplies, control of soil erosion with the use of wind breaks, contour banks, reseeding of grass, gully blocking, earth dams, and drains. Also includes staff required and expenditure to protect and develop the resources.
Kitui District/Structural methods/Vegetation cover/Reseeding

MAHER, C. 1938
SOIL EROSION AND LAND UTILIZATION IN THE EMBU RESERVE
Colony and Protectorate of Kenya (mimeo)
200 pp., 59 figs., 7 tables.
This report covers the topography, soils, climate, history, land tenure, population, stock, cultivation, crops, soil erosion, animal husbandry, water supply, roads and land reconditioning of the Embu Reserve.
Embu District/Physiographical parameters/Soil types/Rainfall characteristics/Socio-economic aspects

MAHER, C. 1938
PRELIMINARY NOTES ON LAND UTILIZATION AND SOIL EROSION IN THE MERU RESERVE
Colony and Protectorate of Kenya, Nairobi.
76 pp., 47 plates.
Covers the general land use and soil erosion of the Meru Reserve and methods of soil conservation such as stone terraces, trash lines, closing hills to grazing, contour ploughing and level of graded banks.
Meru District/Land use/Structural methods/Trash lines/Closure
MAHER, C. 1938

NOTES ON SOIL EROSION AND LAND UTILIZATION IN NYANZA PROVINCE. PARTS I AND II.

Department of Agriculture, Soil Conservation Service, Nairobi. 110 pp., 32 plates.

Report on settlement and agricultural activity of Nyanza Province in relation to soil erosion and conservation methods like level contours, earth banks, grass strips, trash lines, contour hedges and trenches.

Contouring/Grass strips/Trash lines/Retention ditches

MAHER, C. 1939

CONSERVATION OF SOIL IN FLAX GROWING AREAS

E. Afr. Agric. For. J. 5:197

A short article dealing with the problem of sheet wash under flax cultivation and the use of broad base terraces to control the problem.

Sheet erosion/Terraces

MAHER, C. 1939

HILL CULTURE

E. Afr. Agric. J. 5:36-44

Discusses the problem of soil erosion on hill slopes and terracing to control soil erosion. Recommends the use of perennial vegetation on hill slopes and gives a long list of tree species that can be used and are beneficial to the farmer.

Physiographical parameters/Terraces/Vegetation cover
MAHER, C. 1939
USE OF LEVEL CONTOUR BANKS AND LIVE OR DEAD WASH STOPS IN EROSION CONTROL IN NATIVE AREAS
E. Afr. Agric. For. J. 5:190-194
Discusses the use of contour earth banks, hedges, grass strips, vegetation, trash lines, terraces to control soil erosion in native farms, and the risks involved in each case.
Contouring/Terraces/Trash lines/Grass strips

MAHER, C. 1940
ROADS AND THEIR RELATIONSHIPS TO SOIL CONSERVATION
1 fig., 5 plates.
Deals with the problems of soil erosion as a result of road drainage and cattle tracks and methods of safely draining excess runoff from roads, use of grass sods, correct location and construction of water ways, and reclaiming severely eroded road sides and abandoned roads.
Physical infrastructures/Compaction/Stabilisation/Layout/Reclamation

MAHER, C. 1940
STRIP CROPPING
E. Afr. Agric. For. J. 5:343-344
Deals with the use, effect, crop type and problems of strip cropping in reducing soil erosion in contrast to broad base terraces and their development to bench terracing.
Strip cropping/Terraces
A VISIT TO THE USA TO STUDY SOIL CONSERVATION

Colony and Protectorate of Kenya, Department of Agriculture.
Government Printer, Nairobi.
81 pp., 93 refs.

Gives an account of places visited in the USA in relation to soil erosion, conservation methods, experiment and research, settlement and education and compares these to the situations prevalent in Kenya.

THE PEOPLE AND THE LAND: SOME PROBLEMS

5 refs.

Describes the social and economic problems arising out of population density over the limit of which the land can support, and mentions the need for land tenure and proper land use.

CONTOUR CULTIVATION. PART II.

2 figs.

Describes the methods and use of contour cultivation, bank cover and grass strips.
MAHER, C. 1943

TERRACES AND TERRACING. THE BENCH TERRACE


A short article for farmers pointing out the objectives of mechanical means of soil conservation, the evolution of terracing, and construction of bench terraces, bank slope, and protection with stone and vegetation.

Terraces/Construction/Stabilisation

MAHER, C. 1943

CONTOUR CULTIVATION. PART I

1 fig., 1 table.

Article discusses the difficulty and advantages of contour cultivation. Gives a table on effect of direction of rows on water and soil losses.

Contouring/USLE

MAHER, C. 1943

TERRACES AND TERRACING. PART III. BROAD BASE TERRACING.

1 table

Describes the broad base terrace, gives table for the design of channel gradient under different lengths, vertical and horizontal intervals. Includes use of grass cover for channel.

Terraces/Design/Layout/Stabilisation
MAHER, C. 1943

TERRACES AND TERRACING. PART VI. FAILURES AND THE CAUSES

Discusses the causes of terrace failures with respect to neglet of outlets or too wide spacing or neglet of grading channel after some period or when bank is too narrow or too steep.

Terraces/Failures

MAHER, C. 1943

NARROW BASE TERRACING

Gives recommendations for bank slope and depth of narrow base terraces under squatter and coffee farming systems.

Terraces

MAHER, C. 1943

MEADOW STRIPS, TERRACE OUTLETS AND DRAINAGE WAYS
E. Afr. Stand. March 5, 1943.
4 figs.

Discusses reasons of grass planting, type, strip width, the various types of terrace outlets and natural drainages.

Grass strips/Terraces/Waterways
MAHER, C. 1943

SOIL CONSERVATION SERVICE, NOTES ON PROCEDURE

Department of Agriculture, Government Printer, Nairobi.
32 pp., 7 figs., 15 tables.

A small booklet containing instructions on procedure to be followed by assistant soil conservation officers and levelers. Contains information and tables on terrace spacing, gradient, cutoff drain design, waterways and list of camping materials.

Extension/Design/Layout/Cut-off drains/Waterways

MAHER, C. 1943

TERRACES AND TERRACING. PART II. THE FORMATION OF BENCH TERRACES.

2 figs.

Discusses the broad base and narrow base terraces and the natural and mechanical methods of terrace formation, construction and maintenance.

Terraces/Construction/Maintenance

MAHER, C. 1943

TERRACES AND TERRACING. PART IV. BROAD BASE TERRACING. THE FINISHING TOUCHES.


Deals with terrace outlet gradients, the need to check for high and low points of channel beds and to level them. Warns of the need to keep terrace channel bank to a slope of 4:1.

Terraces/Layout
DIVERSION DITCHES.

2 figs., 2 tables.

Deals with the design of size, gradient and construction of cutoff drains. Methods of pegging, calculating velocity of Mannings formula from slope and grass cover are included.

Cut-off drains/Design/Layout/Construction

TERRACES AND TERRACING. PART V. PLOUGHING THE TERRACE.

E. Afr. Stand. February 5, 1943
2 figs.

Discusses the one-hand and two-hand methods of cultivation and opening furrow up-hill.

Terraces/Tillage

CONSERVATION OF WATER FOR STORAGE PURPOSES

E. Afr. Agric. J. 11:221-222

Warns against the idea of replacing forest by grass for the purpose of water conservation and lists possible undesirable effects on the environment.

Land use/Water harvesting/Deforestation/Environmental impact assessment.
MAHER, C. 1946

GOATS, FIRE AND BLOWING SANDS


Discusses the land deterioration around towns and settlements and soil erosion as a result of overgrazing by goats and the destruction of vegetation by fire. Includes the need to control grass burning, protect valley heads and village planning.

Overgrazing/Deforestation

MAHER, C. 1947

HANDBOOK FOR SOIL CONSERVATION SERVICE OFFICERS

Colony and Protectorate of Kenya, Department of Agriculture. Government Printer, Nairobi. 67 pp., 7 figs., 26 tables

A small handbook for soil conservation service officers on the use of levelling instruments, design and layout of terraces, drainage channels and daily technical activities and responsibilities, relations to farmers and cost accounting.

Tools/Design/Layout/Terraces/Waterways

MAHER, C. 1949

OBSERVATION ON SOME SOIL CONSERVATION PROBLEMS IN KENYA COLONY


(not available for annotation)

Soil and water conservation
MAHER, C. 1950

SOIL CONSERVATION IN KENYA COLONY. PART I. FACTORS AFFECTING EROSION SOIL CHARACTERISTICS AND METHODS OF CONSERVATION.

Emp. J. Exp. Agric. 18:137-149
14 refs.

Deals with rainfall, soil factors, change in land use, slope length and steepness and tillage that influence erosion, and discusses soil conservation measures and techniques in Kenya. Covers broad base terracing, crop residue, perennial cover crops.

Soil erodibility/Terraces/Plant residues/Vegetation cover

MAHER, C. 1950

SOIL CONSERVATION IN COFFEE

4 pp., 7 figs.

A report of soil conservation work under coffee plantations based on inspection of a number of coffee estates in Ruiru-Thika and Kiambu areas. Reviews soil mulching and terracing on coffee plantations and gives some methods.

Kiambu District/Mulching/Terraces

MAHER, C. 1950

SOIL CONSERVATION IN KENYA COLONY. PART II. SOIL CONSERVATION IN PRACTICE. ORGANIZATION AND LEGISLATION: PRESENT POSITION AND OUTLOOK

Emp. J. Exp. Agric. 18:233-248
8 plates, 2 refs.

Reviews soil erosion and conservation in the arable lands of Kenya. Describes the state of soil erosion under tea, wattle, pyrethrum, coffee and sisal plantations as well as conservation work such as terracing, farm planning, strip cropping, organization and legislation of soil conservation.

Soil and land degradation/Soil and water conservation/Terraces/Strip cropping /Policies
SOIL CONSERVATION

In East African Agriculture, Matheson, J.K. and Bouill, E.W. (Eds). Oxford University Press Chapter VI.
12 pp., 2 plates.

Gives an account of the problem of soil erosion and conservation work in Kenya. Discusses various conservation methods like terracing, grass mulch, grass strips, over stocking of the early years.

Soil and land degradation/Terraces/Mulching/Grass strips/Overpopulation

THE DEVELOPMENT OF SOIL CONSERVATION IN KENYA COLONY. PART I. THE EARLIER YEARS.

World Crops. 3:215-218
6 plates.

Discusses the extent and problems of soil erosion under European and native farmers in the 1930's, early protective methods and the use of trash lines, grass strips and contour banks to control soil erosion.

Distribution/Trash lines/Grass strips/Contouring

THE DEVELOPMENT OF SOIL CONSERVATION IN KENYA COLONY. PART II. THE LAST 10 YEARS OF THE HALF CENTURY.

World Crops. 3:258-261
6 plates

Review of 10 years (1941-1951) soil conservation activity in Kenya. It gives account of the extent of terracing work done on both European and native farms, defects and drawbacks.

Terraces
MAHER, C. 1972

SOIL CONSERVATION -1. THE FIGHT AGAINST EROSION

World Crops. 24:94-97
1 table, 8 refs.

A general article on the problem of soil erosion, the importance of vegetative cover, and on the need of conserving the soil, especially in the developing countries, with problems of population and land shortage.

Socio-economic aspects/Vegetation cover/Soil and water conservation

MAHER, C. 1972

SOIL CONSERVATION -2. LAND CAPABILITY CLASSIFICATION.

World Crops. 24:160-162
7 refs.

Second article dealing with the USDA land classification system and its use in Kenya. Includes extent of land planning in Kenya.

Land use

MAHER, C. 1972

SOIL CONSERVATION -3. PHYSICAL MEASURES OF CONSERVATION

World Crops. 24:324-327
5 refs.

Discusses the need of soil and water conservation in the humid and semi-arid areas. Covers the history of conservation work in Kenya, methods of terrace layout, broad base terraces and tie ridging.

Soil and water conservation/Terraces/Layout/Ridging
THE GOAT: FRIEND OR FOE

E. Afr. Agric. J. 11:115-121
18 refs.

Deals with the role of the goat in overgrazing, land deterioration and soil erosion in the semi-arid areas of Kenya under traditional African farming system.

Overgrazing/Soil and land degradation/Socio-economic aspects

NOTES FOR CIRCULAR FOR ISSUE WITH USDA FARMERS BULLETIN NO. 1789.

Government Printer, Nairobi.
5 pp., 1 table.

A booklet prepared for use in conjunction with the USDA Farmers Bulletin No. 1789. Indicates some points needed to be changed for the Kenyan conditions on type of terrace, terrace discharge, terrace cross section, re-alignment of the terraces, methods of cultivating terraces and cost of terraces.

Policies

THE ROLE OF ANIMALS IN LAND AND FARM MANAGEMENT AND SOIL AND WATER CONSERVATION

Ministry of Agriculture, Land and Farm Management Division, Nairobi. 42 pp.

(not available for annotation)

Soil and water conservation/Socio-economic aspects
SOIL AND WATER CONSERVATION IN DEVELOPMENT PLANNING: A REFLECTION

DAE, SIDA
1 table, 2 refs.

Paper addresses the itself to the urgency of soil and water conservation in Kenya and highlights the shortcomings of current economic and development planning theories and practices in handling matters concerning ecosystems and resources conservation and their efficient utilization. Discusses a number of policy instruments which need further strengthening for more effective soil and water conservation programmes.

Policies

SOIL FORMATION IN THE TURKANA DESERT.
KADOC No. 10933
2 refs.

Briefly describes the soil formation in the Turkana Desert with emphasis on erosion, piedmont soils, soil deposits, profile developments and soil moisture relations.

Turkana District/Soil development

LAND USE AND DEVELOPMENT IN THE CHYULU AREA OF KENYA

Land Resources Development Centre, Tolworth Tower, England KT6 TDY
77 pp., 4 figs., 21 refs., 3 maps 1:25,000 1:50,000 1:20,000

Assesses present and future land use pattern as a guide to possible changes in groundwater recharge and also as a basis for planning local water supplies. Gives details on climate, soils, vegetation, cropping and surface water availability. Also gives maps which provide an overview of land potential and land tenure. Future prospects of the area are discussed against the historical perspectives of the three contrasting districts into which the study area is divided.

Machakos District/Chyulu/Land use/Water resources
MANSSELL-MOULLIN, M. 1973

REPORT ON THE HYDROLOGY OF THE SABAKI RIVER

(not available for annotation)

Water resources

MANSFIELD, J.E. 1983

E.M.I. SOIL AND WATER CONSERVATION PROJECT (SEMI-ARID AREAS). EMBU/MERU DISTRICTS


Describes the present project approach containing two phases. Phase I covers selection of catchment areas from air photo interpretation and ground check-ups. Phase II deals with investigation, survey of selected farms on cropping practice, farm size, yields, livestock and farm problems. Assessment of existing conservation measures such as water harvesting, stone mulches, ridge cultivation, grass strips and terracing are included.

Embu District/Meru District/Aerial photo analysis/Water harvesting/Mulching

MARIMI, A.P.M. 1977

THE EFFECT OF SOME TILLAGE METHODS AND CROPPING SEQUENCE ON RAINFALL CONSERVATION IN A SEMI-ARID AREA OF EASTERN KENYA

M.sc. Thesis, University of Nairobi. 175 pp., 12 figs., 39 tables, 76 refs.

Thesis on the effect of cropping sequence and four tillage practices on reducing runoff. Gives comparative crop yield under the different treatments and recommends the tied ridging method for further research.

Machakos District/Katumani/Tillage/Soil productivity/USLE
MARIMI, A.P.M. 1978

THE EFFECT OF CERTAIN TILLAGE METHODS IN CROPPING SYSTEMS FOR CONSERVING RAINFALL IN A SEMI-ARID AREA OF EASTERN PROVINCE

IDS Occasional Paper No. 27, pp. 74-86.
2 tables, 34 refs.

Discusses results of experiment carried at Katumani in 1976-77 of four tillage systems that can increase the availability of moisture to crops (maize and beans) hence increasing crop yields and stabilizing crop production.

Machakos District/Katumani/Tillage/Soil productivity

MASEREKA, E.M. 1983

A STUDY OF DESIGN, CONSTRUCTION AND BANK STABILIZATION OF "FANYA JUU" TERRACES AT KABETE, KENYA

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering
36 pp., 7 figs., 6 tables, 45 refs.

A preliminary report on the design and construction of "fanya juu" terraces and bank stabilization trials with seven different grass types and a stone wall bank. Gives cost of construction and land taken by terrace.

Nairobi District/Kabete/Design/Construction/Terraces

MATI, B.M. 1984

A TECHNICAL EVALUATION OF SOIL CONSERVATION METHODS IN SMALL SCALE FARMS IN KIAMBU DISTRICT

Ministry of Agriculture, Soil and Water Conservation Branch
72 pp., 11 figs., 6 tables, 1 appendix.

Study is a representative of a high potential area where labour intensive soil conservation activities are carried out. Study done to (a) find out the methods of soil conservation practiced in the district; (b) evaluate the effectiveness of the methods used to conserve the soil and improve crop yield; (c) check the effect of topography, land use and cultural practices on soil conservation; (d) identify the problems facing the farmers and recommend appropriate solutions.

KIAMBU DISTRICT/Evaluation/Management practices/Structural methods/Soil productivity
CULTURAL AND STRUCTURAL ASPECTS OF SOIL CONSERVATION: AN EVALUATION REPORT

DAE, SIDA
1 fig., 1 table, 3 refs.

Paper reports an evaluation study carried out in Kiambu District to: find out what soil conservation activities were going on in the district; evaluate the effectiveness of the methods used in conserving soil; check the effect of topography, land use and cultural practices on soil conservation; identify the problems facing the farmers, and recommend appropriate solutions. Also gives the basic facts about the district.

Kiambu District/Evaluation/Management practices/Structural methods

GRAZING SYSTEMS EFFECTS ON INFILTRATION RATES AND SEDIMENT PRODUCTION OF A BUSHED GRASSLAND BUCHUNA, KENYA

M.Sc. Thesis Submitted to the Graduate College of Texas A & M University.
76 pp., 9 figs., 16 tables, 66 refs., 3 appendices.

Thesis investigates the effects of grazing systems on infiltration rates and sediment production at Buchuna Range Research Station, Kenya. Studies four livestock grazing treatments: high intensity low frequency, rotation, moderate continuous and non-grazing. Also studies two vegetation types and bare ground. Finds that infiltration rates are consistently greater in vegetated plots than unvegetated ones. Sediment production is greater from unvegetated plots than from vegetated plots.

Compaction/Infiltiration/USLE/Vegetation cover

AN EVALUATION AND COSTINGS OF GULLY CONTROL AND RECLAMATION STRUCTURES IN MACHAKOS DISTRICT, KENYA

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
33 pp., 12 figs., 3 tables, 6 maps, 23 refs.

Reports the biotic interference by cultivation, overgrazing, cutting trees, cattle track, foot paths, fire and drainage (road) as the causes of gullies. Gives cost of temporary and permanent gully control structures.

Machakos District/Gully erosion/Gully control/Overgrazing/Compaction
KISII REPORT 1987: TECHNICAL AND SOCIO-ECONOMIC EVALUATION

Ministry of Agriculture, Agriculture Engineering Division
50 pp., figs., tables, appendices.

The study is a technical and socio-economic evaluation of Kisii District on issues pertaining to farm sizes, slopes, land utilization, homesteads, cultivated land, the erosion situation, the state of conservation and conservation methods used.

Kisii District/Socio-economic aspects/Land use/Land degradation/Management practices

SPONTANEOUS SETTLEMENT PROBLEM IN KENYA

East African Literature Bureau, Kampala
192 pp., tables, refs.

Socio-economic aspects

LOCAL ENVIRONMENTAL PERCEPTION AND SOIL AND WATER CONSERVATION PRACTICES

20 tables

A report on farmers attitude towards soil conservation works at six locations in Machakos District. Covers the causes of soil erosion, best way to combat erosion, reclamation of grasslands, gullies and how gullies should be reclaimed, forest protection, cattle losses and destocking, and factors influencing perception of farmers.

Machakos District/Socio-economic aspects/Causes/Gully erosion/Reclamation
AN EVALUATION STUDY OF THE MACHAKOS MANUAL TERRACING PROGRAMME BY MWETHYA GROUPS

University of Nairobi, Departments of Sociology and Agricultural Engineering
43 pp., 2 figs., 17 tables, 8 plates, 20 refs.

Contains two parts. Part I analyses the present state of soil conservation, mechanical vs cultural control of erosion, terracing methods, cutoff drains, waterways on both cultivated and grazing land. Includes erosion on the grazing land, the need for planning, monitoring, research and investigations. Part II deals with the performance, need and work efficiency-tool correlation of some manual tools, tools shortage and maintenance. Gives some recommendations.

Machakos District/Management practices/Structural methods/Land use/Tool

DROUGHT AND FAMINE IN KENYA

Discussion Paper No. 144, IDS, University of Nairobi.
(not available for annotation)

AN OVERVIEW OF WATER HARVESTING IN KENYA

6 pp., 2 tables, 3 refs.

Paper reviews water harvesting projects in the ASAL areas. Argues that water harvesting projects should address the priority of local population in order to mobilize the people to participate fully. Suggests and analyses a strategy to boost production in ASAL areas.

Water harvesting
SOIL CONSERVATION IN GRAZING LANDS

4 pp., 1 fig.

Analyses the development of erosion in grazing lands, the consequences of overgrazing, and the conservation of grazing lands. Gives a few lines on how to arrest erosion in grazing lands and the likely constraints to hinder the development of grazing lands. Illustrates his arguments with examples from Baringo District.

Baringo District/Overgrazing

COMPARISON AND EVALUATION OF "FANYA JUU" AND CHANNEL TERRACES IN KYANGULUMI SUBLOCATION IN MACHAKOS DISTRICT

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.

72 pp., 3 figs., 2 tables, 9 refs.

The study compares and evaluates terracing in Kyangulumi sub-location of Machakos District, based on ability to conserve soil and water, cost of construction and maintenance, channel and bank profile surveys and farmers interviews.

Machakos District/Kyangulumi/Terraces/Costs/Construction

THE ROLE OF PERMANENT PRESIDENTIAL COMMISSION ON SOIL CONSERVATION AND AFFORESTATION IN PROMOTING SOIL AND WATER CONSERVATION


Outlines the problems of soil erosion and deforestation in Kenya, constraints in the past, national efforts, and the role of the Permanent Presidential Commission on Soil Conservation and Afforestation. Lists fourteen functions of the commission.

GoK/Deforestation/Revegetation
MBURU, C.N. 1984

SOIL AND WATER CONSERVATION AND AGRICULTURAL MACHINERY TECHNOLOGY FOR THE NATIONAL EXTENSION PROGRAMME.

Ministry of Agriculture and Livestock Development, Central Province. 32 pp., 4 appendices.

Study illustrates and analyses the purpose of soil conservation structures in holding water runoff from gathering enough speed to erode land. Highlights the important agronomic measures which would help to conserve soil and water. Gives some recommendations on how to avoid soil erosion in the pastures. Lists the ways through which agroforestry helps the farmer. Gives an extensive table on the type of farming technologies that would need to be criticised or modified to suit the farmers.

Structural methods/Management practices/Agroforestry

MBURU, D.M. 1983

STUDY OF SOIL EROSION ASSOCIATED WITH NEW SETTLEMENTS IN THE LONGONOT KIJABE AREA OF KENYA, AND PROPOSALS FOR ITS CONTROL.

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering. 106 pp., 8 figs. 6 tables, 7 plates, 7 maps, 32 refs.

Gives detailed field observations, differential survey and air photo analysis used to examine soil erosion problems in a newly settled catchment area at Maai-Mahiu, Kijabe.

Aerial photo analysis/Land use/Land degradation

MBURU, D.M. 1989

THE ROLE OF SAND DAMS IN WATER SUPPLY IN ARID AREAS


Paper presents the results of a case study carried out in a part of Machakos District to evaluate the role of sand dams on water supply for domestic and livestock use within a catchment of 67 km2. Determines the extractable volume of water in one sand dam, and the monthly water use by both people and livestock.

Machakos District/Water harvesting/Dams
MBURU, J.K. 1989

OVERVIEW OF SOIL AND WATER CONSERVATION AND WATER HARVESTING IN KENYA

12 pp., 5 refs.

Paper gives an outline of severity of soil erosion in Kenya, and discusses the benefits of soil conservation, and its relationship with water conservation. Also discusses the progress in water harvesting in Turkana, Baringo and Kitui Districts, and the purposes to which water harvesting is made use of.

Soil and land degradation/Soil and water conservation/Water harvesting

MBUVI, J.P., WOKABI, S.M. 1984

THE RELATIONSHIP BETWEEN SOILS, GEOLOGY AND RELIEF IN PART OF THARAKA AREA.


(not available for annotation)

Soil types/Physiographical parameters

MCGRATH, J.W. 1980

REPORT ON SOILS AND SOILS MANAGEMENT ON THE MAGARINI LAND SETTLEMENT SCHEME, MALINDI, KENYA

Mcgowan International, Albury, NSW, Australia.

(not available for annotation)

Soil types/Management practices
Agricultural Consultants for Australian Development Assistance Bureau. pp. 15-19

Describes the extent and types of erosion, rill, tunnel, and road side erosion, in the Magarini Land Settlement Project. Discusses the use and disadvantages of heavy grass cover and way of cutting trees with roots intact in order to control erosion. Proper drainage and sufficient cutoff drains are recommended to reduce erosion incidence.

Rainfall distribution/Rill erosion/Physical infrastructures/Cut-off-drains

Presents some guidelines on what can be done in the face of desertification, using Kenyan experience as an example. The Kenyan livestock commercialization programme, designed to nationalize the industry and to make better use of land for grazing is discussed and the role of Technoserve through a ranch service company is described.

Land degradation

Paper discusses the effectiveness of various methods of water harvesting techniques in relation to crop yields in dryland areas of Baringo District. Argues that due to an increase in population in dry areas there is a need for research on dryland crops that would mature in short periods and at the same time conserve available moisture regime during the rainy season.

Baringo District/Water harvesting/Soil productivity
MICHEKA, R.W. 1983

THE EFFECT OF PLANT RESIDUES ON WATER HOLDING CAPACITY OF THE SOIL IN NO-TILLAGE SYSTEMS

10 refs.

Reviews the advantages of zero tillage and plant residues to increase infiltration, better crop yield and reduced soil loss and cost due to tillage.

Tillage/Plant residues/Infiltration/Soil productivity/Costs

MILNE, M.N.H., GICHUKI, J.J. 1977

DESERTIFICATION: PROBLEMS PECULIAR TO THE NYANZA PROVINCE AND PROPOSED REMEDIES

A draft paper presented to the National Seminar on Desertification, Nairobi, UNEP, July 6-8, 1977.
15 pp., 5 tables

Assesses the environment and factors which operate towards desertification in the Nyanza Province. Stresses the problems of gully erosion due to high rainfall intensity, the destruction of forests and farming and grazing practices. Includes silting of six rivers, data on fire wood requirement, tree nurseries seedling, population pressure, surface erosion and flooding.

Land degradation/Rainfall intensity/Gully erosion/Deforestation/Sedimentation

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT 1984

REPORT FROM THE NATIONAL SOIL AND WATER CONSERVATION SEMINAR HELD AT KABARNET, BARINGO DISTRICT, 10-15 JUNE 1984

MALD, Soil and Water Conservation Division
3 figs., 14 photos

The report outlines the details of the seminar which was held for the purposes of familiarizing the ministry of agriculture staff with the challenges of soil conservation in Kenya.

Baringo District/Soil and water conservation
MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT

SIDA SPONSORED SOIL CONSERVATION PROJECTS - ANNUAL REPORT - 1984/85

Ministry of Agriculture, Soil and Water Conservation Division.
39 pp., 1 fig., 10 tables, 7 bagraphs.

Gives an outline of soil conservation activities, and implementation expenditures of the SIDA sponsored projects for the year 1984/85. Gives details on objectives and goals, reporting and monitoring, evaluation, training and staff organization. Also looks at finances and funds, equipments, and other supportive infrastructures. Achievements in soil conservation are also reported.

Socio-economic aspects/GoK

EMBU-MERU-ISIOLO ARID AND SEMI-ARID LANDS PROGRAMME

Project Memorandum for the Dryland Farming/Soil and Water Conservation Phase II
EMI ASAL PROGRAMME, Ministry of Planning and National Development.
13 pp., 3 appendices.

Project objectives are to: (a) increase understanding of technical and socio-economic conditions and potential to provide base line data; (b) promote the use of soil and soil moisture conservation measures through concentration on particular catchments; (c) undertake applied/adaptive research, on-farm trials demonstrations to promote the use of improved crop varieties, cultivation techniques and optimization of soil moisture management under different tillage systems; (d) strengthen local agricultural departments.

Socio-economic aspects/Management practices/Structural methods/GoK

NATIONAL SOIL AND WATER MANAGEMENT RESEARCH PROJECT

Ministry of Agriculture and Livestock Development
61 pp., 1 fig., 6 tables, 23 refs., annex.

This is a research programme proposal designed by a Task Force appointed to prepare a national soil and water resources project that would generate conservation technologies to cater for such concepts as erosion prediction, conservation measures, rehabilitation procedures of degraded lands, and others.

GoK
MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT 1986DAE, SWCB

SOIL AND WATER CONSERVATION PROJECT (SIDA) - PLAN OF OPERATION 1986/87 - 1988/89

Ministry of Agriculture and Livestock Development
66 pp., 2 figs., 12 tables, annex, 5 appendices.

Report gives information about the background and the main objectives of the project. Details on soil conservation, extension methodology, programme strategies, changes in programme direction, support activities, training, school approach to conservation, and agroforestry programme for the year 1986/87 are also given. Describes soil conservation activities in Mai-Mahiu semi-arid area. Appendices contain a budget summary.

Socio-economic aspects/GoK

MINISTRY OF AGRICULTURE, AGRICULTURE ENGINEERING DIVISION 1986 DAE, SWCB

SOIL AND WATER CONSERVATION - ANNUAL REPORT 1985/86

MOA, Engineering Division, Soil and Water Conservation Branch
40 pp., 4 figs., 8 tables, 7 plates, 10 appendices.

Report lists five aims of the SIDA sponsored soil conservation projects, and analyses the approach and strategies of soil conservation. Contains details on field extension work and how farmers should approach gully control, and rehabilitation of degraded land. Also outlines the extent and the development of tree nurseries, and staff training programme.

Socio-economic aspects/Reclamation/Nurseries

MINISTRY OF AGRICULTURE, AGRICULTURE ENGINEERING DIVISION 1987 DAE, SWCB

SOIL CONSERVATION: SEMI-ANNUAL REPORT - JULY-DECEMBER 1987

MOA, Engineering Division, Soil and Water Conservation Branch
23 pp.

Report provides a view of the soil conservation activities accomplished in the first half of the 1987/88 financial year. Reports that the period saw launching of the Catchment Approach to soil conservation extension, and the progress attained by farmers in the construction of cutoff drains and artificial waterways.

Soil and water conservation/GoK
SOIL AND WATER CONSERVATION PROJECT (SIDA) - BUDGETS AND TARGETS FOR PROVINCES AND DISTRICTS

MOA, Engineering Division, Soil and Water Conservation Branch
33 pp., 4 appendices

Gives details on the utilization of funds in farm development, training, transport operation, travel and accommodation, agricultural shows, purchase and repair of plant and equipment, soil conservation nurseries and tools. Also gives a budget summary, estimates for the districts and provinces, and number of farms in need of terraces.

Soil and water conservation/GoK

SOIL CONSERVATION FOR INCREASED AGRICULTURAL PRODUCTION
Save our Soils

MOA, Engineering Division, Soil and Water Conservation Branch
32 pp., illust.

The booklet is a cartoon-set story that explains the importance of soil conservation in a society. Explores methods necessary for good farming and teaches how and when to construct and maintain conservation structures. Illustrates zero-grazing, the catchment approach, and the role of trees in soil conservation.

Extension/Maintenance/Structural methods/Agroforestry/Education

SEMI-ANNUAL REPORT JULY-DEC. 1988: SOIL AND WATER CONSERVATION PROJECT(SIDA)

MOA, Engineering Division, Soil and Water Conservation Branch
31 pp., 6 tables

Report summarizes major activities and achievements as recorded between July and December 1988 and attempts to compare the accomplished work with targets as set out in the 1988/89 work plan. Gives an outline of utilization of funds and the achievements in personnel training from the headquarters down to the district level. Also outlines the methods and extent of on-farm soil conservation activities, and comments from districts and provinces.

Socio-economic aspects/GoK
ANNUAL REPORT 1987/88 - SOIL AND WATER CONSERVATION PROJECT (SIDA)

MOA, Engineering Division, Soil and Water Conservation Branch
40 pp., 8 figs., 16 tables, 4 appendices.

The report gives seven aims and objectives of the soil and water conservation project meant to conserve the two basic land resources in order to ensure increased and sustained farm productivity on long term basis. Has details on project policy and guidelines, and work done during 1987/88.

Evaluation/GoK

PLAN OF OPERATION 1989/90 - 1991/92: SOIL AND WATER CONSERVATION PROJECT (SIDA)

MOA, Engineering Division, Soil and Water Conservation Branch
55 pp., 1 fig., 11 tables, appendix.

The plan of operation contains a comprehensive budget planning for the period 1989/90 - 1991/92. Gives some notes on the background and the main objectives of the project. Describes soil and water conservation extension implementation strategies, organization of the catchment approach to conservation, and the execution of the recommended conservation measures. Also states the objectives, targets and activities, and strategy for implementation of agroforestry and ASAL programme.

Economic considerations/Policies/Agroforestry

WORK PLAN 1989/90 - SOIL AND WATER CONSERVATION PROJECT (SIDA): BUDGETS AND TARGETS FOR PROVINCES AND DISTRICTS

MOA, Engineering Division, Soil and Water Conservation Branch
19 pp., 2 appendices

Plan report reviews the soil conservation project with a special focus on its objectives and implementation strategy. Gives the data on estimates and targets of staff training and tree nurseries as well as the number of farms in need of conservation.

Soil and water conservation/GoK
MEASUREMENT AND PREDICTION OF SOIL EROSION IN KIAMBU AND MURANG’A DISTRICTS OF KENYA

National Environment Secretariat
2 figs., 11 tables, 13 refs.

The report summarises the extent to which the soil in Kiambu and Murang’a districts are undergoing serious reduction in root depth, plant available nutrients and capacity to retain plant available water. The report suggests that soil erosion control measures like crop rotation, contour farming, strip cropping, continuous cropping, and terracing be recommended for the two districts on a site basis.

Kiambu District/Murang’a District/Prediction/Soil depth/Nutrient loss

PLANNING AND DESIGN FOR SOIL AND WATER CONSERVATION IN KITUI DISTRICT

This is a compilation of technical information and data concerning soil and water conservation in Kitui district. The draft contains 15 chapters which have details on soil characteristics, rainfall and its impacts on soil, types and extent of erosion, agronomic methods of erosion, planning of control measures, design of control measures, moisture conservation and runoff harvesting, irrigation and the economics of soil and water conservation.

Kitui District/Chemical properties/Physical properties/Rainfall characteristics/Rainfall distribution

MACHAKOS DISTRICT INTEGRATED DEVELOPMENT PROGRAMME

Programme for integrated development of Machakos District for submission for funding by the European Economic Community. Description and cost of projects in the fields of agriculture and settlement, soil and water conservation, health services, rural roads, education and electrification are given.

Machakos District/Soil and water conservation/GoK
Paper discusses the objectives of water conservation in arid and semi-arid areas and the relationship between soil and water conservation. Also discusses design, construction operations, and maintenance of water conservation structures. Outlines the health and socio-economic aspects of water conservation and gives some recommendations on how to carry out soil and water conservation work in specific situations within the arid and semi-arid areas.

Management practices/Design/Construction/Socio-economic aspects/Soil-and water conservation

Deals with the general perspective, present situation and trends and benefits of soil and water management. Also gives policies and issues in soil and water management, recommends a comprehensive reappraisal of existing policies and programmes and the need for stepping up the pace and coverage of survey, research and development, planning and programming for watershed and head water area development.

Policies

The Impact of Agricultural Education on Schools and Colleges on Rural Environment and Development.

(not available for annotation)
MISIKO, P.A.M. 1983

STRATEGIES AND CONSTRAINTS OF PLANNING SOIL AND WATER MANAGEMENT PROGRAMMES ON THE CATCHMENT BASIS IN WESTERN KENYA

1 fig., 1 table, 8 refs.

A short article discussing the constraints, present situation, trends, derived benefits, objectives, policies, issues and planning of soil and water management.

Policies

MISIKO, P.A.M. 1984

THE TRAINING IN SOIL CONSERVATION AT EGERTON COLLEGE

Regional Soil Conservation Unit/SIDA

Paper exposes the extent of training in soil and water conservation at Egerton College. Paper presented with the considerations that the College Academic Board makes the necessary adjustments in the syllabi from time to time as need arises. Stresses that research must be practically oriented, and hence training programmes in soil and water conservation must also be practically oriented. Lists all the subjects taken in agricultural engineering course at the college.

Training/Evaluation

MONGI, H.D., HUXLEY, P.A.(Eds) 1979

SOILS RESEARCH IN AGROFORESTRY.

ICRAF, Nairobi, Kenya.
584 pp., 21 articles.

Proceedings of an Expert Consultation held at ICRAF, Nairobi, March 26-30, 1979. Contains collection of soils research review papers on methodologies and strategies that can be of value in the development and study of agroforestry system.

Agroforestry
AN INITIAL ASSESSMENT OF RAINFALL EROSIVITY IN EAST AFRICA

Technical Communication No. 11. University of Nairobi, Department of Soil Science
40 pp., 4 figs., 5 tables, 54 refs.

Assesses the various rainfall erosivity parameters for East Africa based on data from 35 stations. Analyses the intensity and kinetic energy of the storms and gives regression equation and correlation coefficient for the KE15/KE30 and mean annual rainfall. Groups areas in East Africa into four. An erosivity map based on KE15>25 parameter is included.

Rainfall intensity/Rainfall kinetic energy/USLE

SOIL EROSION

Miscellaneous Paper No. 1. University of Nairobi, Department of Soil Science.
117 pp., 10 figs. 13 tables, ref.

Paper based on lecture notes for postgraduate course on soil conservation. The first two define the state and basic principles of erosion, the forces involved. Chapter 3 defines types of soil erosion. Next chapter deals with measuring erosion in situ, drainage basins and remote sensing methods. Chapter 5 discusses the magnitude and frequency of erosive events. Chapter 6 covers consequences of accelerated erosion. The remaining chapters deal with predicting soil erosion and the USLE.

Land degradation/Measurements/Aerial photo analysis/Rainfall intensity

LAND USE AND EROSION IN THE MACHAKOS HILLS

Annals of the Association of American Geographers. 69(3):419-431

Paper argues that most of the available land in the Machakos Hills was occupied by the farmers since 1900, and changes in land use practices and intensity caused extensive surface and gully erosion by the 1930s. States that experimental data show that the soils are highly erodible and many of the erosive storms occur at the beginning of the rainy season when the crop cover is poor. Further states that erosion rates of 5 to 10 mm/yr are common on poorly conserved cultivated or grazing land.

Machakos District/Land use/Vegetation cover/Gully erosion/Soil erodibility
MOORE, T.R. 1979

RAINFALL EROSIVITY IN EAST AFRICA

Geogr. Annlr. 61 A(3-4) 147-156
4 figs., 3 tables, 31 refs.

Discusses rainfall erosivity parameters such as intensity, KE and their combinations. The temporal distribution of erosive rains are examined for 35 stations of East Africa. Gives erosivity map and regression equation for R and KE25.

Rainfall intensity/Rainfall kinetic energy/Rainfall distribution/Maps/

MOORE, T.R. 1983

THE PROBLEM OF SOIL EROSION IN SEMI-ARID KENYA.

The Kenyan Geographer. 5(1&2):61-71 (special issue)
1 fig., 2 tables, 48 refs.

Discusses the rates of soil erosion in semi-arid Kenya, the environment consequences of accelerated erosion, factors that control the rate of erosion, measurement, mapping, predicting, and how to control soil erosion in semi-arid Kenya.

Prediction/Impacts/Maps/Soil and water conservation


THE INFLUENCE OF GRASS COVER ON RUNOFF AND SOIL EROSION FROM SOILS IN THE MACHAKOS AREA, KENYA

KADOC No. 40153

Tropic. Agric., Trin. 56(4):339-344
3 tables, 8 refs.

Reports on the result of runoff and soil erosion measurements from sites with similar soils but different grass cover.

Machakos District/Run-off plots/USLE/Vegetation cover
MOORHEAD, H.J., SIMS, G.P. 1982

SEDIMENT DEPOSITION IN RESERVOIRS ON THE RIVER TANA, KENYA

4 figs., 4 tables, 12 refs.

Discusses five years (1975-1980) Bathymetric survey of sediment yield of the Tana River on the Kumbutu and Thimba reservoirs. Report reviews soils, land use, erosion and theoretical studies of sediment yields and includes estimates of sediment yield using sediment rating curves for Kamburu. Discussion of the validity and accuracy of the rating curves is also included.

Soil types/Land use/USLE/Survey/Sedimentation

MUCHENA, F.N. 1983

THE ROLE OF SOIL SURVEYS AND LAND EVALUATION IN ASSESSING SOIL EROSION HAZARD

1 fig.

Briefly describes the major soil types of Kenya and their susceptibility to soil erosion.

Survey/Soil types/Soil erodibility

MUCHENA, F.N. 1985

THE EXTENT AND MANAGEMENT OF THE "PROBLEM SOILS" (PLANOSOLS, SOLONETZ, SOLONCHAKS - ERODED AND DEGRADED SOILS) IN KENYA

13 pp(?), 1 fig., 7 tables, refs(?).

Paper discusses the occurrence, distribution, characteristics and management of soils whose chemical and physical characteristics impede the use of the soils especially for agricultural purposes.

Soil types/Chemical properties/Physical properties/Soil productivity
LAND-USE PLANNING FOR INTEGRATED RANGE MANAGEMENT


Paper discusses the status of rangeland in Kenya with special emphasis on proper land use planning of rangeland resources. Argues that data obtained during rangeland resource surveys can be used in land evaluation for rangeland use for both domestic livestock and wildlife.

Land use/Vegetation cover

SOIL FERTILITY CONSTRAINTS IN IMPROVING CEREAL YIELDS IN SOILS OF THE ARID AND SEMI-ARID AREAS OF KENYA


(not available for annotation)

Soil types/Chemical properties/Soil productivity

DEGRADATION OF SALINE AND SODIC SOILS IN NORTH EASTERN PROVINCE, KENYA


DAE, SIDA

4 figs., 1 table, 12 refs.

This paper discusses the degradation hazards of the saline and sodic soils which occupy a large part of North Eastern province of Kenya. The paper lays special emphasis on those degradation processes that result from excess of salts and their subsequent effect on physical properties.

Salinization/Chemical properties/Physical properties/Soil types
PROPERTIES, MANAGEMENT AND CLASSIFICATION OF VERTISOLS IN KENYA

1 fig., 1 table, 25 refs.

Paper provides a brief outline of the vertisols found in Kenya. Describes the occurrence and distribution, morphological characteristics, and physical and chemical characteristics of the soils. Discusses the management and general classification of the soils.

Vertisols/Physical properties/Chemical properties

SOILS OF THE HIGHLANDS AND MOUNTAINOUS AREAS OF KENYA WITH SPECIAL EMPHASIS ON AGRICULTURAL SOILS

2 figs., 2 tables, 11 refs.

Paper gives the location and physical features, climate and land use in the highlands. Discusses in details the important soil types in the highlands. Summarizes the efforts and strategies in use to conserve soil in the highlands.

Survey/Soil types/Land use/Rainfall characteristics/Soil and water conservation

A CRITICAL EVALUATION OF THE PLACEMENTS OF THE ANDEPTS OF KENYA ACCORDING TO THE PROPOSED KEY FOR ANDISOLS

12 pp., 1 fig., 1 table, 12 refs.

Describes and maps the occurrence and distribution of Andepts in Kenya. Discusses the physical characteristics of these soils in relation to their phosphate retention capacity and high bulk density.

Soil types/Maps/Physical properties/Chemical properties
REPORT ON SOILS AND LAND USE IN ARID AND SEMI-ARID LANDS OF KENYA

Ministry of Environment and Natural Resources, NES.
38 pp.

(not available for annotation)

Soil types/Land use

OCCURRENCE, UTILIZATION AND RESEARCH ACTIVITIES ON VERTISOLS IN KENYA

Paper presented at the IBSRAM Seminar, Nairobi, Kenya, 1-6 Dec., 1986
14 pp., 1 fig., 2 tables, 13 refs.

Paper describes the occurrence, distribution and characteristics of vertisols in Kenya. Discusses the present utilization and research on vertisols in the country.

Vertisols/Physical properties/Chemical properties

SEMI-DETAILED SOIL SURVEY OF THE PROPOSED BURA EAST IRRIGATION SETTLEMENT SCHEME

153 pp., 2 figs., 5 tables, 2 maps 1:20,000, 3 appendices.

Report describes the soil conditions of the proposed Bura East Irrigation Settlement Scheme and gives an evaluation of the suitability of the soils in the area for irrigated agriculture. Examines the physical and chemical conditions of the soils. Lays special emphasis on those soil properties that could influence the irrigitability of these soils.

Survey/Soil types/Chemical properties/Physical properties
MUCHENA, F.N., WOKABI, S.M. 1986 KSS

THE RED SOILS OF KENYA: THEIR OCCURRENCE, DISTRIBUTION AND MAJOR CHARACTERISTICS


22 pp., 1 fig., 1 table, 25 refs., 1 annex.

Paper describes the occurrence, distribution and utilization of red soils in Kenya. Discusses the classification, physical and chemical characteristics, of the soils, in relation to their agricultural potential.

Survey/Soil types/Physical properties/Chemical properties

MUCHIRI, G. 1985 DBT

DRYLAND TILLAGE TECHNIQUES FOR SMALL FARMERS

In: Agricultural Research and Extension for the Drylands of Kenya Proceedings of a Workshop held in Embu, Kenya, 2-6 December 1985 pp. 56-70

5 figs., 1 table

The paper gives the objectives of dryland tillage through which the problems of soil loss and water loss, and poor soil moisture utilization are overcome. The paper analyses the shortcoming of traditional tillage practices. The paper also discusses the innovative dryland tillage techniques and the limitations of farmers to use the new technology.

Tillage/Soil and water conservation

MUCHIRI, G. 1989 DBT

MINIMUM TILLAGE OPTIONS FOR SEMI-ARID KENYA


8 pp., 1 table.

Paper discusses tillage options for small farms, 4-5 ha, in agro-ecological zones IV and V, where tractor mechanization is not available and where livestock is a part of farming. Describes the soil conditions of the zones and points out he need to control weeds in crop growing fields. Gives the objectives of a tillage in semi-arid areas and the current tillage practices in the zones for both alfisols and vertisols. The tillage innovations for the zones are also discussed.

Soil types/Tillage
CONSERVATION TILLAGE IN SEMI-ARID AREAS OF KENYA

10 figs., 8 tables, 9 refs.

Discusses in detail existing tillage systems and describes the development of the Desi-plough for the semi-arid areas of Machakos, for better crop yield, soil moisture retention, reduced furrow runoff, low draught requirement, fast operation, good seed bed preparation on dry soil and better runoff control.

Machakos District/Tillage/Soil and water conservation

THE IMPACT OF DROUGHT ON FARMING SYSTEMS IN THE SEMI-ARID REGIONS OF EASTERN KENYA

21 pp., 4 tables, 13 refs.

Paper discusses small scale rainfed mixed farming systems in the semi-arid environment of Eastern Kenya. Attempts a characterization of farming environment as well as variation in the key factors. Highlights the consequences of shortfalls in production for subsistence and response strategies that are employed to cope with the situation.

Eastern Kenya/Farming systems research

SUMMARY OF STUDIES - EMBU DISTRICT

The pamphlet is a summary of four studies in Embu district which covered: socio-economic profiles of Runyenjes division; technical evaluation of soil conservation practices in Runyenjes division; socio-economic profile of Gachoka division; and technical evaluation of soil conservation measures in Gachoka division.
MUHAMMED, M. 1988

SUMMARIES OF STUDIES - KITUI DISTRICT

Ministry of Agriculture, Soil and Water Conservation Branch
11 pp., 1 table

This study is a summary of five studies which dwelt on soil conservation profiles, the opinions of soil conservation officers, technical and economic evaluation of soil conservation programmes, in Kanyaa and Kalio sub-locations of Kitui district.

Kitui District/Extension/Economic considerations

MUHAMMED, M. 1988

SUMMARIES OF STUDIES - NYERI DISTRICT

Ministry of Agriculture, Soil and Water Conservation Branch
16 pp., 4 figs.

This pamphlet summarises seven studies on soil erosion which dwelt on socio-economic evaluation, soil conservation profile, views of divisional officers, technical evaluation of soil conservation, and woody biomass in agriculture, in Othaya division. Also included in the pamphlet is soil conservation in Gura sub-location, and an evaluation of soil conservation in Nyeri District as a whole.

Nyeri District/Othaya/Extension/Evaluation

MUHAMMED, M. 1988

SUMMARIES OF STUDIES - KIAMBU DISTRICT

Ministry of Agriculture, Soil and Water Conservation Branch
6 pp., 5 figs.

Report summarizes a study - technical evaluation of soil conservation methods in small scale farms in Kiambu District - by B. Mati in 1984. Lists the objectives for which the study was meant to fulfil. Gives bargraphs on terraced farms in Kiambu District.

Kiambu District/Terraces
MUHIA, C.D.K. 1989

GRAZING-LAND MANAGEMENT AND IMPROVEMENT

DAE, SIDA
5 refs.

This paper, based on studies in Kitui, Machakos, Baringo and Marsabit Districts of Kenya, summarizes the problems arising from traditional grazing land management, and reviews possible interventions towards better management and improvement in the context of soil and water conservation.

Management practices/Socio-economic aspects/Policies

MUIRU, D.M. 1983

SOIL CONSERVATION IN NAROK DISTRICT.

4 pp.

Describes the problem of soil erosion in the district. Mentions some of the problems affecting soil conservation activities and discusses contour ploughing, grass or unploughed strips, trash lines, cutoff drains, gully control and establishment of soil conservation committees in the district, divisional and locational levels as the methods used in fighting erosion in Narok. Also gives two feasible objectives for the future.

Narok District/Contouring/Grass strips/Trash lines/Structural methods

MULAMULA, H.P., OHEMA, M.W., OLUM, F. 1976

THE EFFECT OF PRIMARY TILLAGE AND INITIAL TIME OF SEED BED PREPARATION AND YIELD OF WHEAT IN KENYA


(not available for annotation)
Tillage/Soil productivity/Management practices
SOIL CONSERVATION EVALUATION PROJECT ON IKONDENI RIVER CATCHMENT.

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
86 pp., 5 figs., 12 tables, 17 refs., 1 fold map, appendix.

Examines land use and soil erosion on Ikodeni River Catchment, Machakos District. It deals with existing soil conservation methods on different slopes, crops grown, soils, rainfall data, forest, grazing lands, water supply, drainage and the severity of the erosion problem.

Machakos District/Land use/Land degradation/Soil and water conservation

KENGO STRATEGIES, APPROACH AND EXPERIENCES IN SOIL AND WATER CONSERVATION, LAIKIPIA DISTRICT

3 pp.

Paper discusses the approach, strategies and experiences gained in trying to conscientize people to conserve soil and water resources in Laikipia District.

Laikipia District/NGO's

A NOTE ON THE OCCURRENCE OF WET AND DRY SPELLS OF THE MAJI MAZURI, KENYA


(not available for annotation)

Rainfall characteristics
MUNGAI, D.N., WAMICHA, W.N. 1985

THE MAJOR SOILS OF THE ARID AND SEMI-ARID AREAS OF KENYA IN RELATION TO SOIL AND WATER CONSERVATION


1 fig., 3 tables, 11 refs.

Paper describes the major soils occurring in the arid and semi-arid areas of Kenya in terms of their susceptibility to erosion and conservation needs of the grazing lands. Paper classifies the soils according to the FAO/UNESCO Soil Map of the World Legend (FAO 1974). Also describes various types of soil surveys done by the Kenya Soil Survey in arid and semi-arid areas of Kenya.

Survey/Soil types/Maps/Chemical properties/Physical properties

MUNI, R.K. 1989

RAIN WATER HARVESTING FOR LIVESTOCK IN SANDY ARID AND SEMI-ARID REGIONS


6 pp., 10 refs.

Paper outlines the design of a co-operative research project between Kenya and Israel under US-Israel CDR Programme that seeks to reclaim vast semi-arid areas by growing more pasture. Paper reviews literature on water harvesting in the arid and semi-arid lands, and lists five techniques of rain water harvesting. Gives the conditions that will be considered to determine the ultimate amount of rain water that can be collected.

Water harvesting

MUNUVE, J.M. 1989

OVERVIEW ON CATCHMENT STUDIES IN SEMI-ARID AREAS INFLUENCE OF LAND USE ON THE WATER SOIL CONSERVATION


7 pp., 3 tables, 3 refs.

Paper discusses the interdependence of the hydrological cycle and soil conservation with special emphasis on rainfall erosivity and frequency, infiltration, storage of soil moisture and maintenance of high infiltration rates, evaporation, transpiration and streamflow. Argues that trees are by far the best ground cover to stabilize soil increase infiltration and protect steep slopes from erosive rainfall.

Land use/Rainfall characteristics/Vegetation cover/Soil erodibility/Physical properties
460 MURIUKI, R.M. 1989

INTEGRATED FOOD SECURITY PROGRAMME ASAL DEVELOPMENT PROJECT WAMBA/ SAMBURU

4 pp.

Paper gives a historical outline of the project whose aim is to identify a self-reliance concept in co-operation with and for the people of Wamba Division, and enable them to improve their food and living situation. Discusses livestock and natural resources development.

Laikipia District/Wamba

461 MURIUKI, S.K. 1982

CONTROLLING DESERTIFICATION IN EASTERN PROVINCE: SOIL AND WATER CONSERVATION IN RELATION TO LAND CAPABILITY AND POPULATION PRESSURE

12 pp., 1 fig., 3 tables, 4 refs.

Article reviews the soil and water conservation measures undertaken in the districts of Eastern Province in the period of 1969-1980. Also examines the problems of human and animal population pressure and suggests possible solutions.

Land degradation/Overpopulation/Soil and water conservation

462 MURIUKI, S.K. 1983

SOME SALIENT PROBLEMS IN THE MANAGEMENT OF SOILS IN THE HUMID PARTS OF KENYA

12 pp., 2 figs., 12 refs.

Deals with water and nutrient management of the soils of the high potential of the humid areas of Kenya. It includes sections on agronomic practice, cropping systems, minimum tillage, terracing, contour farming, fertilizers and manure application for nutrient recycling, and the role of government and non-governmental organizations in soil and water conservation.

Management practices/GoK/NGO’s

MUSYOKA, F.H. 1989

SOIL AND WATER CONSERVATION - EMI ASAL, EMBU


Paper outlines the physical environment of the area focussing on issues pertaining to rainfall, climate and soils. Also outlines the objectives of the project, soil conservation methods and structures, and the problems facing soil conservation.

Rainfall characteristics/Soil types/Structural methods

MUTAI, S.K. 1989

IMPLEMENTATION OF SOIL AND WATER CONSERVATION AND AFFORESTATION IN ARID AND SEMI-ARID AREAS OF SOUTHERN KITUI DISTRICT, EASTERN PROVINCE


DAE, SIDA
2 figs., 6 tables, 4 refs.

Paper describes the government and farmers efforts in combating soil erosion in the semi-arid areas of Southern Kitui District. Describes the approach and results of soil surveys conducted in the area. Analyses land use patterns which comprise crop production, livestock farming and afforestation. Looks at river bank protection as stipulated in the Agriculture Act, and the constraints that hinder conservation work.

Kitui District/Extension/Land use/Survey/Revegetation

MUTEA, J., KEYA, S.O., GURNAH, A.M. 1977

THE EFFECT OF VARIOUS TYPES OF MULCHES ON SOIL MOISTURE IN A COFFEE FIELD AT KABETE, KENYA.

FAO Soils Bull. No. 43 pp. 129-144. Rome
6 figs., 6 tables, 9 refs.

Deals with an investigation on the effect of polyethelene and vegetative grass mulches on soil moisture and nutrients under arabica coffee at Kabete. Recommends the grass mulch in preference to the artificial mulch.

Nairobi District/Kabete/Mulching/Soil moisture
A DRAINAGE STUDY FOR THE GESUSU SWAMP IN KISII DISTRICT

MUYA, F.S. 1985

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
82 pp., 27 figs., 18 tables, 13 refs.

Study gives general information about Kisii District and the Kisii Valley Development Project in which the study was conducted. Gives background data on the physical environment of the area focusing on location, climate, hydrology, topography, soils and land use. Describes soil mapping and classification of the area. Also describes the methodology used to investigate the main drain design and gives results for the design procedure. Discusses cutoff drains, water table fluctuation and fertility status of the peat.

Kisii District/Gesusu/Cut-off drains/Soil types

NANDI REPORT 1987

MUYERA, R. 1987

Ministry of Agriculture, Soil and Water Conservation Branch
15 pp., 3 figs. 1 table, 6 photos

The report is a profile of Kilibwoni division of Nandi district. It presents brief information on land use, soil types, cropping, land ownership, agricultural economics, causes of erosion; and erosion processes.

Nandi District/Kilibwoni/Land use/Soil types/Socio-economic aspects

TAITA - TAVETA RURAL DEVELOPMENT PROGRAMME (SOIL AND WATER CONSERVATION)

MWAKILEO, B.N. 1989

5 pp., 2 tables.

Paper gives background information on Taita - Taveta District in relation to soil and water conservation programmes carried out by both DANIDA and SIDA. Also gives Mkwayi Soil Conservation Catchment progress report and a summary and ideas which could benefit the newly set Mwatate soil conservation campaign and others. Outlines the problems facing the DANIDA and SIDA conservation programmes.

Taita - Taveta District/NGO's/Soil and water conservation/Policies
MWANGI, G.C. 1978

WORK DONE BY THE SOIL CONSERVATION STATION AT MARIAKANI, COAST PROVINCE


Briefly states the general problem of soil erosion in the Coast Province and describes the establishment of the Mariakani Soil Conservation Unit and its activities in the past.

Soil and water conservation/Soil and land degradation

MWANIKI, D.M. 1980

DESIGNING OF ARTIFICIAL WATERWAYS FOR DISPOSAL OF RUNOFF FROM FARMS AND ROADS.

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi. 33 pp., 4 figs., 10 tables, 1 fold map, 7 refs.

Describes the steps and the problems faced in the design of grassed waterways at three sites in Kandani area of Murang’a District.

Murang’a District/Kandani/Waterways/Design/Stabilisation

MWATHE, 1989

"SOIL AND WATER CONSERVATION IN LOW POTENTIAL AREAS". POTENTIALS AND POSSIBILITIES OF IRRIGATION DEVELOPMENT IN THE ARID AND SEMI-ARID AREAS


Paper discusses the physical and social factors that determine the potentials and possibilities of irrigation development in arid and semi-arid zones of Kenya. Lists the resources required for irrigation and the development options along the water courses. Also mentions the obstacles that would need to be overcome to achieve irrigation developments in ASAL areas.

Water resources
ON-FARM EVALUATION OF MULTIPURPOSE AGROFORESTRY TREE SPECIES FOR SEMI-ARID LANDS

Research Report No. 5. Dryland Agroforestry Research Project; 1983-86
23 pp., 8 tables.

Paper reports on species screening on denuded subsoils of Kakuyuni Dam site, assessment of species distributed to farmers, performance of fruits issued to farmers, on-farm live fencing trials and treatment of existing trees and grazing land. Recommends tree species with the best performance.

Agroforestry

PRESENT LAND USE OF THE NAROK AREA

Kenya Soil Survey Miscellaneous Report No. M31
29 pp., 1 table, 6 refs., 1 map, 6 appendices.

Paper describes the present land use focusing on such aspects as the cultivated land, mixed farming, grazing and browsing, forestry, bushland thickets, wildlife conservation and tourism. Argues that the present land use in the area is influenced by both the environmental factors and the sociological virtues of the local people.

Narok District/Land use/Socio-economic aspects

THE EFFECTS OF CULTIVATION ON SOME PHYSICAL AND CHEMICAL SOIL PROPERTIES OF THREE KENYAN SOILS

(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O.
DAE, SIDA
5 tables, 26 refs.

Paper gives an outline of a study done to evaluate the changes in organic carbon-nitrogen cation exchange capacity and bulk density of three intensively cultivated soils in Kenya. Describes the method and materials used to carry out the analysis. Gives possible factors that could have contributed to soils vulnerability to erosion.
SOIL MANAGEMENT IN AGROFORESTRY.

1 fig., 9 tables, 24 refs.

Deals with soil management under agroforestry; the land use pattern, soil types, soil properties, land capability for agroforestry, changes in fertility, soil conservation and soil physical condition. Also includes a strategy for soil management in agroforestry.

Agroforestry/Soil types/Land use/Chemical properties/Physical propert.

Chapter 3 looks into the physical environment of the project area, focusing on location, population, climate, geology and soils, physiography and hydrology, vegetation and land use, and swamps that would need reclamation. Chapter 6 examines the drainage of agricultural lands, water management of the red soils in the Upper Tana Basin, and in potentially salt affected soils.

Land use/Salinization

Sedimentation
KITUI DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, Clark University, USAID
117 pp., 11 figs., 31 tables

The study is a comprehensive summary of information and data on the environmental status of Kitui district. The study analyses the physical and natural environment, land uses, soil erosion trends, monitoring and research needs, as well as recommendations for environmental intervention.

Nakuru District/Land use/Environmental impact assessment/Socio-economic aspects

LOWER TANA RIVER DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, ETMA, USAID, SECID & Clark University
65 pages; 17 figs; 14 tables; 39 refs.

Gives an overview of the natural environment of Lower Tana District on issues pertaining to location, terrain, geology, soils, climate, water, vegetation and fisheries. Discusses the development patterns in fisheries and forestry and the impact of population growth on resources and general infrastructures. Also discusses the state of agriculture and the conservation of indigenous areas.

Lower Tana River District/Environmental impact assessment/Socio-economic aspects/Land use/
KWALE DISTRICT ENVIRONMENT REPORT

NES, USAID, Clark University, SECID, ETMA. 236 pp., 28 figs., 61 tables, 53 refs.

Study is divided into three parts. The first part gives an overview of the Kwale environment touching on such aspects as soils, climate, vegetation, geology, land tenure, agriculture, livestock population, and communication. Part two deals with the natural resources and conservation, land use and development, and human environment. Part three is a conclusion on the socio-economic and environmental development dynamics in the district.

Kwale District/Environmental impact assessment/Land use/Socio-economic aspects

LAMU DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, USAID, ETMA 118 pp., 18 figs., 41 tables, 42 refs.

Report consists of three parts. Part I describes the location and history of settlements in Lamu District, an overview of natural resources, and that of human environment. Part II has details on environmental problems and development, with emphasis on the terrestrial environment, coastal and marine resources, and human environment. Part III summarises the Lamu environment.

Lamu District/Environmental impact assessment/Socio-economic aspects/Land use

MOMBASA DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, USAID, SECID, ETMA, Clark University. 132 pp., 11 figs., 39 tables, 38 refs., 2 appendices.

Part I of the report briefly describes the Mombasa District environment. Part II discusses natural resources management, land use development, human environment and development. Part III concludes by pointing out the areas that require human intervention for environmental conservation.

Mombasa District/Environmental impact assessment/Land use/Socio-economic aspects
MERU DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, ETMA, USAID
101 pp., 11 figs., 37 tables, 23 refs., 2 appendices.

Gives an outline of physical and natural environment on issues pertaining to terrain, geology, soils, climate, vegetation, water resources, fisheries and wildlife. Discusses the human environment as it relates to environmental perception and land use patterns in the District, and recommends human intervention in a number of environmental problems.

Kirinyaga District/Environmental impact assessment/Land use/Socio-economic aspects

KIRINYAGA DISTRICT ENVIRONMENTAL ASSESSMENT REPORT

NES, Ministry of Environment and Natural Resources.
128 pp., 23 figs., 37 tables, 26 refs.

Briefly describes the physical and human environment of Kirinyaga District with emphasis on soils, geology, topography, climate, water resources, natural hazards, vegetation, wildlife and fisheries. Contains details on natural resource use and conservation, land use and development, human environment and its dynamics.

Kirinyaga District/Environmental impact assessment/Socio-economic aspects/Land use/

Narok Report - 1987

Ministry of Agriculture, Soil and Water Conservation Branch
19 pp., 2 figs., 2 tables, 5 refs.

The report is a socio-economic profile of East Mau division of Narok district. The report gives basic facts on runoff and drainage, soils, climate and vegetation, population factors, agricultural activities, and the general infrastructure. It also describes the situation of land, labour and capital availability.

Narok District/East Mau/Socio-economic aspects
493 NEUNHAUSER, P. 1983

APPROPRIATE LAND USE SYSTEMS FOR SMALL HOLDER FARMS. A SURVEY OF
ECOLOGICAL AND SOCIO-ECONOMIC CONDITIONS IN THE MACHAKOS DISTRICT
(not available for annotation)

Machakos District/Socio-economic aspects

494 NGUGI, A.W., BRADLEY, P.N. 1986

AGROFORESTRY, SOIL CONSERVATION AND WOODFUEL IN MURANG’A DISTRICT
PART I

Kenya Woodfuel Development Programme
5 figs., 14 tables, 3 appendices.

Study discusses soil physical characteristics of Murang’a District, field survey methodology on agroforestry and soil conservation, soil conservation structures, practices and profiles.

Murang’a District/Agroforestry/Physical properties/Structural methods/

495 NGUGI, M.N. MICHIEKA, R.W. 1989

CURRENT FINDINGS ON CONSERVATION TILLAGE IN A MEDIUM POTENTIAL AREA
OF KENYA

In: Soil and Water Conservation in Kenya. Proceedings of the Third
(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and
Mochoge, B.O
DAE, SIDA
4 tables, 14 refs.

The paper presents some research findings on minimum tillage as one
method of soil conservation in medium potential areas of Kenya. The
paper also establishes and confirms the yield advantages using mini-
mum tillage over conventional tillage as observed in other parts.

Embú District/Tillage
AGROFORESTRY AND SOIL CONSERVATION ON SMALL-SCALE FARMS IN MURANG'A DISTRICT

(Eds) Thomas, D.B., Biamah, E.K., Kilewe, A.M., Lundgren, L. and Mochoge, B.O
DAE, SIDA
2 figs., 3 tables, 4 refs.

The paper is a summary of a study done by the Kenya Woodfuel Development Programme researchers to find the extent to which agroforestry would help in soil conservation. The paper discusses at length the major aspects of soil erosion and conservation in the district, agroforestry, woody biomass and fuelwood supply in the farms.

Murang'a District/Soil and water conservation/Agroforestry

THE 'COUNTER-CONTOUR' SYSTEM OF SOIL AND WATER CONSERVATION AND LAND DRAINAGE

6 pp., 3 figs.

Describes a method of farming where runoff is directed against the contour to have more time to infiltrate and deposit sediment before being discharged safely out of the field, in a farm near Nakuru.

Nakuru District/Contouring

A STUDY OF GIKUNI GULLY IN KIAMBU DISTRICT AND PROPOSALS FOR ITS CONTROL AND RECLAMATION

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
70 pp., 12 figs., 10 tables, 31 refs.

Report describes an investigation into the origins and control of a large gully at Gikuni in Kabete location, Kiambu District. Attempts to find out when and how the gully started and its development; reasons for failures to control the gully in the past; amount of runoff from the gully catchment and the factors controlling it; alternative technical and feasibility methods of controlling the gully and reclaiming the eroded area for productive use; amount of land and soil lost through gully erosion.

Kiambu District/Kabete/Gully erosion/Gully control/USLE
NJIHIA, C.J. 1977

THE EFFECT OF TIED RIDGES, STOVER MULCH AND FARM YARD MANURE ON RAINFALL OBSTRUCTION IN A MEDIUM POTENTIAL AREA, KATUMANI, KENYA

11 pp.

(not available for annotation)

Machakos District/Katumani/Mulching/Ridging

NJIHIA, C.M. 1989

ASAL SOIL AND WATER CONSERVATION PROGRAMME DEVELOPMENT. SOIL AND WATER MANAGEMENT - NATIONAL RESEARCH PRIORITIES AND SUGGESTIONS FOR EFFECTIVE RESEARCH-EXTENSION LIASON

17 pp., 1 table, 10 refs.

Paper presents the goals of the National Soil and Water Management Research Programme research priorities for the ASAL areas. Gives the physical environment of the area and suggests effective research-extension liaison. Maintains that it is essential that research forges effective linkages with extension, as well as with other research institutions, if research-extension liaison has to be achieved.

Soil and water conservation/Extension/Policies

NJIHIA, C.M., OWIDO, S.F.O. 1981

INFILTRATION AND MOISTURE STORAGE CHARACTERISTICS OF THE MAGARINI LAND SETTLEMENT, COAST PROVINCE, KENYA.

Ministry of Agriculture, Irrigation and Drainage Research Project.

(not available for annotation)

Infiltration/Land use/Soil moisture
AN ADVISORY REPORT ON SOILS AND CONSERVATION MEASURES TO BE CARRIED OUT IN KARIUKI'S FARM, LIMURU.

Kenya Soil Survey, Site Evaluation Report No. 50. 6 pp., 2 figs., 7 refs.

A short survey report dealing with the susceptibility of soil to erosion due to slope steepness. Recommends conservation measures (terraces) if area is to be cultivated, and use of grass cover for grazing.

Slope angle/Terraces/Vegetation cover

ASSESSMENT OF RESEARCH PRIORITIES FOR DRYLAND FARMING SYSTEMS IN KENYA

In Support of Agricultural Technology Project Design

Scientific Research Division, MOA and Winrock International, USA 103 pp., 4 figs., 24 tables, 46 refs. appendix.

Programme addresses itself to the scientific research priorities to be carried out in order to produce and develop technologies that would increase and sustain productivity of drylands. Areas of study include soil and water management, cropping management, agroforestry, animal production, socio-economics, technology transfer and its adoption and development.

Agroforestry/Socio-economic aspects/Soil productivity/Policies/Management practices

SOIL AND WATER CONSERVATION EXTENSION - THE KENYA EXPERIENCE


An outline of policy, training, interdepartmental cooperation and daily activities of the soil and water conservation extension programme in Kenya. Covers the labour intensive approach and the mechanise method and the training of senior officers, technical assistants, provincial administration staff, local leaders and farmers. Also includes type of routine activity.

Policies/Training/Extension
505 NJUGUNA, R.W. 1989

DRYLAND FARMING AND WATER HARVESTING: EXPERIENCES OF WEST POKOT DISTRICT

3 pp.

Paper outlines the major ecological zones of the West Pokot District in relation to soil and water conservation. Discusses the approach and progress of both the agricultural development and the soil and water conservation projects funded by the ASAL development programme in West Pokot District.

West Pokot District/Water harvesting/Soil and water conservation

506 NJUI, K., DAINES, S.H. 1977

WATER CONSERVATION AND HARVESTING

In Preliminary Project Identification Proposals V. II. Palmer, B.C (Ed)
Marginal/Semiarid Land Study Team
95 pp.

Project proposal for the mid-point review. It includes water conservation, and harvesting, soil conservation research, the need, objectives and importance of grassland revegetation, afforestation and the establishment of soil and water conservation section at the divisional level.

Machakos District/Kitui District/Soil and water conservation/Water-harvesting/Revegetation

507 NORTH, H.T.

A STUDY OF THE AREAL AND TEMPORAL DISTRIBUTIONS OF RAINFALL ANOMALIES IN EAST AFRICA


(not available for annotation)

Rainfall characteristics
NORTON-GRIFFITHS, M. 1983

APPLICATION OF LOW LEVEL AERIAL SURVEY TO STUDIES OF SOIL EROSION.


Describes the method of the systematic reconnaissance flight to monitor and evaluate soil erosion in relation to land use, sheet wash, rills, gullies, eroding stream banks and road sides. Gives examples and the costs.

Aerial photo analysis/Land use/Sheet erosion/Rill erosion/Gully erosion

NYAGAH, J.J. 1987

OUR FUTURE LIES IN CO-ORDINATION


This is an interview with Kenya's minister for environment and natural resources on African Ministerial Conference on the environment. Gives policy changes and strategies to combat land degradation.

Policies/Land degradation

NYAMBOK, I.O., ONGWENI, G.S.O. 1975

GEOLOGY, HYDROLOGY, SOIL EROSION AND SEDIMENTATION


A report of a study on climate, geology, soil erosion and sedimentation on the Kamburu/Gitaru Dam area. Gives data on suspended sediment and water chemistry.

Dams/USLE/Sedimentation/Soil and land degradation
NYORO, G. 1978

AN EVALUATION OF SOIL CONSERVATION IN NYERI DISTRICT

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi.

(not available for annotation)

Nyeri District/Evaluation

NZIOKI, M. 1983

INFORMATION FOR SOIL AND WATER CONSERVATION

1 fig., 5 refs.

Deals with the nature and types of information (literature) in soil and water conservation, the growth of information from 1930 to 1980, and the lack of coordination in gathering and disseminating information.

Education/Extension

O'KEEFE, P. 1983

THE CAUSES, CONSEQUENCES AND REMEDIES OF SOIL EROSION IN KENYA

Ambio 12(6):302-305
2 figs., 1 table, 16 refs.

Article presenting the problem of soil erosion in Kenya, the social aspects, the need for wood fuel, tree felling, and labour migration to towns. It also discusses the technical solutions like terraces, ground crop cover, crop residue, cutoff drains, grass strips leading into bench terraces and zero tillage.

Soil and land degradation/Causes/Socio-economic aspects/Management practices /Structural methods
OBAGA, S.O., OTHIENO, C.O. 1989 DAE, SIDA

THE PHYSICAL EFFECTS ON THE SOIL OF DIFFERENT METHODS OF UPROOTING OLD MORIBUND TEA (CAMELLIA SINENSIS L.) AND SOIL REHABILITATION BEFORE PLANTING

DAE, SIDA
1 fig., 4 tables, 16 refs.

Paper presents the findings of an experiment carried out to investigate the effects on the soil physical status caused by different methods of uprooting tea and rehabilitating the soil by green cover crops for a fixed period of two years. Also presents data on the results of a one-and-a half years prior to the replanting of tea in the area.

Kericho District/Land use/Crop vegetation cover/Physical properties

OBASI, G.O.P., KIANI, P.M.R. 1977

MONTHLY DISTRIBUTION OF WATER BALANCE COMPONENTS IN KENYA.

(not available for annotation)

Physical properties

OGOLA, J.F. 1978 IDS

SOIL AND WATER CONSERVATION ON SUBDIVIDED LARGE SCALE FARMS IN UASIN GISHU.


A brief article describing the problems of soil erosion on large scale farms which had been sub-divided without considering previous soil conservation measures.

Uasin Gishu District/Land degradation
OGUTU, Z.A. 1989

A LABORATORY METHOD OF TESTING GRASS SPECIES FOR EROSION CONTROL IN A SEMI-ARID ENVIRONMENT


DAE, SIDA
3 figs; 5 tables, 21 refs. Appendix

Paper presents a laboratory method for testing the suitability of grass species for erosion control. Two grass species, crested wheat grass (Agropyron pectineforme) and hard fescue (Festuca ovina) were grown under controlled temperature and precipitation regimes in two soil types and two slope angles. Found the former to be more effective.

Vegetation cover/Soil types/Slope angle

OJANY, F.F. 1978

EROSION AND PLANTATION SURFACES IN THE MACHAKOS KITUI AREA OF KENYA

University of Nairobi, Department of Geography.
Geogr. J. (German, F.R.) 2(4):289-294

(not available for annotation)

Machakos District/Kitui District/Revegetation/Land degradation

OKOTH, P.F., MUYA, E.M. 1984

RELATIONSHIP BETWEEN MOISTURE, ORGANIC MATTER CONTENT AND SOIL TEXTURE IN A SOIL TOPOSEQUENCE IN THE KORDJA PLAIN, MAGADI, KENYA


(not available for annotation)

Kajiado District/Physical properties
OKOTH-OGENDO, H.W.O. 1979

THE IMPLEMENTATION OF LAND USE REGULATIONS WITH SPECIAL REFERENCE TO THE PROTECTION OF THE SOIL AND ITS FERTILITY

Paper presented to the Environmental Chemistry Workshop, Chiromo Campus, University of Nairobi, 20-27 July, 1979

(not available for annotation)

Policies/Land use

OLANG', M.O. 1984

VEGETATION COVER ASSESSMENT IN TURKANA DISTRICT, KENYA

3 figs., 2 tables, 11 refs.

Paper contains an overview of the Turkana District state of climate, rainfall distribution, land forms, and soils. Uses the point centre quarter method (PCQ) to collect data on woody biomass, and the quadrant method to estimate the composition and the production of the herb layer.

Turkana District/Soil types/Physiographical parameters/Rainfall distribution /Vegetation cover

OMORO, L.A. 1985

A STUDY ON EFFECTS OF GRASSES IN EROSION CONTROL ON CROPLAND AT KABETE, KENYA

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering.
47 pp., 4 figs., 11 tables, 29 refs., 1 map, 8 appendices.

Study explores the use of grass strips for soil and water conservation in Kenya. Observes that the role of grass strips in controlling both runoff and soil loss is appreciable, and should be encouraged so long as the strip width does not exceed 1.5 m. Finds that grass species for bank stabilization useful but says that it affects the overall crop yield which is nevertheless compensated by the grass harvest for livestock.

Nairobi District/Kabete/Grass strips/USLE/Soil productivity
CROP COVER, RAINFALL ENERGY AND SOIL EROSION IN GITHUNGURI (KIAMBU DISTRICT), KENYA.

A Thesis submitted to the University of Manchester for the Degree of Doctor of Philosophy in the Faculty of Science.
195 pp., 22 figs., 28 tables, 138 refs., 2 appendices.

Study discusses soil erosion under various annual crops at different seasons in an intensively cultivated high rainfall area of Kenya. Observes that annual crops usually grown twice a year, progressively weaken the soil's resistance to erosion and frequently expose the soil to forces of rainfall erosion. Argues that most of the soil loss and runoff is the result of a few extreme magnitude, high intensity storm, events that contribute to a large proportion of the total erosive energy.

Kiambu District/Githunguri/Vegetation cover/USLE/Rainfall intensity

SOIL EROSION AND CONSERVATION IN KENYA

UNEP - IFIAS Workshop, Sochi.

(not available for annotation)

Land degradation/Soil and water conservation

AN OUTLINE OF SOIL EROSION AND SEDIMENTATION PROBLEMS IN KENYA


(not available for annotation)

Land degradation/Sedimentation
ONGWENY, G.S. 1977

PROBLEMS OF SOIL EROSION AND SEDIMENTATION IN SELECTED WATER
CATCHMENT AREAS IN KENYA WITH SPECIAL REFERENCE TO TANA RIVER.

Aqua 1:85-91

(not available for annotation)

Soil and land degradation/Sedimentation/Impacts

ONGWENY, G.S. 1978

WATER AND SOIL CONSERVATION IN KENYA

Proceedings of the third World Conference on Water Resources. Sao
Paulo, Brazil.

(not available for annotation)

Soil and water conservation

ONGWENY, G.S. 1978

PROBLEMS OF SOIL AND WATER CONSERVATION WITHIN THE UPPER TANA
CATCHMENT

In: Soil and Water Conservation in Kenya. Report of a Workshop,
University of Nairobi, 21-23 Sept. 1977.
IDS Occasional Paper No. 27, pp. 87-91.
7 refs.

Report of a study on the sediment load of the Upper Tana Catchment

USLE/Sedimentation
ONGWENY, G.S. 1978

EROSION AND SEDIMENT TRANSPORT IN THE UPPER TANA CATCHMENT WITH SPECIAL REFERENCE TO THE THIBA BASIN.


Thesis on erosion and sediment transport problems in the Upper Tana Catchment based on four years field and laboratory study covering three land use (forest, cultivation and grazing area). Thesis also gives data on plot experiments on hill slopes (runoff and soil loss under different conditions of slope, vegetation density and soil type). Test of the USLE for grazed and cultivated areas are included. It also assesses soil conservation works and proposes land management techniques.

Land degradation/Sedimentation/USLE/Management practices/Structural methods

ONGWENY, G.S. 1979

RAIN AND STORM WATER HARVESTING IN AFRICA WITH REFERENCE TO KENYA.

Consultancy Paper, UNEP, Nairobi.

(not available for annotation)

Water harvesting

ONGWENY, G.S. 1979

THE HYDROLOGY OF SEDIMENT PRODUCTION WITHIN THE UPPER TANA BASIN, IN EASTERN KENYA.


Discusses the climate, hydrology and land use of the Upper Tana Basin. Gives sediment yield values for forested and cultivated areas for nine gauging stations. Estimates sediment yields for the lower grazing lands, develops relationship between suspended sediment yield and mean annual runoff. Paper includes simulated rainfall trials on hillslope plots 0.9 - 1.9 m by 1.8 - 5.4 m on a steep slope over 20%.

Rainfall simulation/Land use/USLE/Sedimentation
532 ONGWENY, G.S. 1980

MONITORING OF SOIL LOSS WITHIN GRAZING AND AGRICULTURAL CATCHMENT WITHIN THE UPPER TANA CATCHMENT OF EASTERN KENYA

International Symposium on Erosion and Sediment Transport Measurement, Florence, Italy.

(not available for annotation)

USLE

533 ONGWENY, G.S. 1983

A PRELIMINARY ACCOUNT OF EROSION, SEDIMENT TRANSPORT AND SURFACE WATER RESOURCES OF PARTS OF MARSABIT DISTRICT


Defines the rate of sediment production for various catchment areas within IPAL area. Geology, topography, drainage, soil ecology, land use, source of sediment, method of harnessing, conserving surface area, and past erosion study are included. Recommends soil and water conservation methods for the area.

Marsabit District/Sedimentation/Soil and water conservation

534 ONSTAD, C.A., KILEWE, A.M., ULSAKER, L.G. 1984

AN APPROACH TO TESTING USLE FACTOR VALUES IN KENYA


(not available for annotation)

USLE
SOIL CONSERVATION ALONG THE LODWAR - KAKUMA ROAD PROJECT

DAE, SIDA
5 figs., 3 refs.

Paper describes and shows the benefits and costs of constructing cutoff ditches, cutoff banks, and bunds, as suitable measures for reducing soil erosion along roads.

Turkana District/Cut-off drains/Terraces/Construction/Costs

SOCIO-ECONOMIC ASPECTS OF SOIL CONSERVATION IN KENYA

Summary and a Guide to the Reports

MALD, Soil and Water Conservation Division
14 pp., 15 refs.

The booklet is an administrative summary of a study set up in Kitui, Keiyo-Marakwet and Nyeri districts, to assess the socio-economic impacts of soil conservation, and factors responsible for farmers' participation or non-participation in the programme.

Socio-economic aspects

RAMBLINGS ON SOIL CONSERVATION - AN ESSAY FROM KENYA

83 pp., 22 photos, 52 refs.

Book gives a fact sheet on soil conservation programmes in Kenya. Discusses in details the success story of soil conservation in Kitui District, during and after colonial period. Looks at the role of women in their informal groups in soil conservation, the impact of administration, and the need to train farmers in the art of conservation.

Kitui District/Socio-economic aspects
OSTBERG, W. 1988
WE EAT TREES: TREE PLANTING AND LAND REHABILITATION IN WEST. POKOT DISTRICT KENYA
A BASELINE STUDY.
SUAS, IRDC, Working Paper 82.
Development Study Unit, Department of Social Anthropology, University of Stockholm.
123 pp., 3 figs., 1 table, 18 photos, 4 maps, 3 appendices.
Study addresses itself to a tree planting project and its activities in the Trans Nzoia and West Pokot districts. Gives background information on three tree plantations in West Pokot, farming and herding, the social fabric, land use and soil conservation, and the significance of trees in Pokot culture. Discusses the development experience and how to create an impact in tree planting in the area.

OSTBERG, W. MADSEN, B. 1984
SOCIO-ECONOMIC ASPECTS OF SOIL CONSERVATION IN KENYA - THREE CASE STUDIES
Department of Social Anthropology, University of Stockholm
38 pp., 1 fig.
This is a compilation of socio-economic studies of soil conservation carried out in 1984 in Keiyo-Marakwet, Kitui and Nyeri districts. For each case the authors discuss the socio-economic activities prevalent in the areas, the soil conservation methods and programmes, as well as the ecological setting.

OTHIENO, C.O. 1974
FIRST YEAR STUDIES ON RAINFALL, RUNOFF AND SOIL EROSION IN A FIELD OF YOUNG TEA.
Tea in East Africa. 19(1):11-18
2 figs., 5 tables, 1 refs.
Deals with first year study of soil erosion and runoff in a tea plant of plot experiments, under four soil management systems. Gives soil loss and runoff values for bare soil manually hand weeded, bare soils with herbicides and hand weeded, plots with oat strips, herbicide and hand weeded, and lastly plots with mulch.
541 OTHIENO, C.O. 1975

SURFACE RUNOFF AND SOIL EROSION ON FIELDS OF YOUNG TEA

Trop. Agric., Trin. 52:299-308
2 figs., 4 tables, 4 refs.

Deals with an experiment carried out for three years at Kericho to assesses the effect of four management treatments on young tea on runoff plots of 10% slope. Gives data on runoff, soil loss and rainfall.

Kericho District/Management practices/Slope angle/USLE/Rainfall characteristics

542 OTHIENO, C.O. 1977

FACTORS AFFECTING SOIL EROSION WITHIN TEA FIELDS

Trop. Agric., Trin. 54:323-330
2 figs., 2 tables, 8 refs.

Describes rainfall intensity, runoff and percentage ground cover as the major factors affecting soil erosion within a 10% tea plantation at Kericho.

Kericho District/Vegetation cover/Slope angle/Rainfall intensity

543 OTHIENO, C.O. 1978

AN ASSESSMENT OF SOIL EROSION ON A FIELD OF YOUNG TEA UNDER DIFFERENT SOIL MANAGEMENT PRACTICES.

IDS Occasional Paper No. 27, pp. 62-73
2 figs., 3 tables, 1 plate, 6 refs.

Describes an experiment carried in Kericho District on soil loss and runoff measured from runoff plots under young tea plantation with four different management practices for a period three years (1971-1974).

Kericho District/USLE/Management practices/Run-off plots
EFFECTS OF MULCHING ON SOILS AND GROWTH OF THE TEA PLANT

Ph.D. Thesis. University of Nairobi, Department of Soil Science. 226 pp., 25 figs., 40 tables, 6 plates, 159 refs.

Thesis on the effect of mulch on yield of tea, soil erosion and runoff. Analyses different erosivity indices and gives correlation coefficient of different indices for soil loss under the different management practices. Also calculates soil erodibility.

Kericho District/Mulching/USLE

AN ASSESSMENT OF SOIL EROSION ON A FIELD OF TEA UNDER DIFFERENT SOIL MANAGEMENT PROCEDURES

E. Afr. Agric. For. J. 43:122-127 (special issue) 2 figs., 2 tables, 4 refs.

Report of three years measurements of soil erosion and runoff recorded on runoff plots on a tea field under four management treatments.

Kericho District/Management practices/USLE/Run-off plots

SOIL EROSION IN UKAMBANI: A GEOGRAPHICAL AND HISTORICAL PERSPECTIVE

A Masters of Arts Thesis Presented to the Graduate Faculty of the College of Arts and Sciences of Ohio University 115 pp., 17 figs. 5 tables, 112 refs.

This study provides a chronological assessment of the evolution of the day-to-day environmental problems in Ukambani during colonial period, with a special focus on soil erosion. The study relates the consequences of human and livestock population growth to land use, and the impacts of colonial land alienation policies to the evolution of the soil crisis in Ukambani land. The study also gives a detailed discussion on soil conservation measures applied in the area and reasons for failure.

Overpopulation/Overgrazing/Land use/Soil and water conservation
A COMPARATIVE STUDY OF LAND DEGRADATION IN MACHAKOS AND BARINGO DISTRICTS, KENYA

Presented at the Annual Conference of The Institute of the British Geographers at Reading University, UK, January 6-9, 1986.
15 pp., 2 tables, 47 refs.

The paper compares the extent of soil erosion in both Machakos and Baringo districts of Kenya. On a historical perspective, the paper examines the physical environment of each area as it pertains to assessment of erosion risk, the socio-economic-political factors as they determine land use systems, up to the year 1964.

The following fields are reviewed: agronomy, farm and livestock management, soil conservation with special reference to terracing and re-afforestation and water conservation, with special reference to the construction of small dams.

Reviews of surveys on resources and current situation of the agricultural sector followed by reconditions and description of proposed or on-going projects. Study includes tillage practices, hydrology, rainfall, water conservation, irrigation, forestry, livestock development, land management and population. Akamba social organization and land tenure and prevailing systems are described. Also describes the soil areas mapped by the project.

Management practices/Socio-economic aspects
PALMER, B.C., SHANER, W., GICHOHI, C., HASH, C.T., MBATHA, B.M. 1978 KADOC

MARGINAL/SEMIARID LANDS PRE-INVESTMENT INVENTORY REPORT NO. 1. ANALYSIS AND PROJECT IDENTIFICATION KADOC No. 10734

276 pp.

Report on a pre-investment survey and resource inventory in Kenya's Marginal/Semiarid lands. Analyses the key issues such as food production, causes and remedies of soil erosion. Describes the present conditions in Machakos, Kitui and Embu, future conditions without development programme and recommends productive possibilities. Appended are a benefit cost analysis showing the viability of the project and other subjects the including cost of soil conservation measures.

Causes/Soil and water conservation/Costs

PEREIRA, H.C. 1952 MAL

INTERCEPTION OF RAINFALL BY CYPRESS PLANTATIONS

E. Afr. Agric. For. J. 18:73-76
3 figs., 1 table, 2 refs.

Analysis of a five and half years data collected to study rainfall interception by bamboo and cypress.

Vegetation cover

PEREIRA, H.C. 1954 MAL

THE PHYSICAL IMPORTANCE OF FOREST COVER IN THE EAST AFRICAN HIGHLANDS

22 refs.

Deals with the change in the stream flow as a result of forest clearing. Shows the occurrence of severe soil erosion due to lack of cover and recommends a system of rotation in tree felling.

Deforestation/Vegetation cover
PEREIRA, H.C. 1956

A RAINFALL TEST FOR STRUCTURE OF TROPICAL SOILS

J. Soil Sci. 7:68-74
2 figs., 1 table, 1 plate, 13 refs.

Describes a new laboratory apparatus for simulating rain drops (size and intensity) for undisturbed soil core samples and gives examples of rainfall test and soil structure.

Rainfall simulation/Rainfall intensity/Soil structure

PEREIRA, H.C. 1959

LESSONS GAINED FROM GRAZING TRIALS AT MAKAVETE, KENYA.

2 tables, 4 refs.

Summarizes the results from the 10 years study of the restoration of overgrazed thorn scrub area near Machakos. Covers ploughing, ley establishment, bush clearing, fencing, control of grazing, manuring, and carrying capacity. Gives six recommendations.

Machakos District/Reclamation/Management practices

PEREIRA, H.C. 1979

HYDROLOGICAL AND SOIL CONSERVATION ASPECTS OF AGROFORESTRY

10 refs.

Presents results of the hydrological effects of two types of plantations, studied for 20 years. Covers tea plantation, stream flow, water use, agroforestry, soil conservation measures, cropping practice and livestock management. Shows tea as a good erosion control agent and recommends good cropping practice and livestock management in order for soil conservation earth works to succeed.

Agroforestry/Vegetation cover/Management practices/Structural methods
GRASS ESTABLISHMENT ON AN ERODED SOIL IN A SEMI-ARID AFRICAN RESERVE

Emp. J. Exp. Agric. 21:1-14
3 figs., 9 tables, 2 plates, 6 refs.

Report of an experiment carried to test methods of grass establishment on eroded semi-arid soil of Machakos area. Methods tested were: sowing, planting, ploughing, manuring and ridging. It also includesgrass establishment and grazing capacity. Test includes four grass species.

Machakos District/Reseeding/Tillage/Ridging

THE WATER BALANCE OF BOTH TREATED AND CONTROL VALLEYS

E. Afr. Agric. For. J. 27:36-41 (special issue)
2 figs, 4 tables.

Reports the dependence of runoff on rainfall intensity, evapotranspiration from forest and cleared areas. Includes the Sambret Catchment study where forest land was cleared and replaced with tea plantation. Result compares stormflow and runoff from forested and young tea fields.

Rainfall intensity/Vegetation cover

EFFECT OF TIED RIDGES, TERRACES AND GRASS LEYS ON A LATERITIC SOIL IN KENYA

Expl. Agric. 3:89-98
2 figs., 5 tables, 17 refs.

Report of a six years study of contour ploughing and tied ridging on 10-12% slope Kikuyu red loam latosol under rainfall intensities exceeding 2 in/hr and rotation with grass ley. Gives measurements of runoff, soil structure and yield for the different systems and rotations.

Contouring/Ridging/Slope angle/Rainfall intensity/USLE
Pereira, H.C., Hosegood, P.H., Thomas, D.B. 1961

The Productivity of Tropical Semi-Arid Thorn Scrub Country Under Intensive Management

Emp. J. Expt. Agric. 29:269-286
1 fig., 9 tables, 2 plates, 10 refs.

Report of the methods of improving severely eroded grazing land in a semi-arid scrub infested area of Ukamba Land. Includes ploughing, ridging, manure dressing, seeding, planting of grasses and test of four new grasses.

Vegetation cover/Soil moisture/Soil productivity/Reclamation

Pereira, H.C., Wangati, F.J. 1980

Effects of Land Use Change on Water Resources


(not available for annotation)

Land use


Water Conservation Fallowing in Semi-Arid Tropical East Africa

Emp. J. Exp. Agric. 26:213-227
3 figs., 7 tables, 1 plate, 13 refs.

Deals with four years experiment with fallowing grass cover and voluntary regeneration of vegetation under ground nuts rotation to conserve soil moisture and subsequent increase in yield.

Vegetation cover/Soil moisture/Soil productivity/Reclamation
REPORT OF A VISIT TO KENYA

Government Printer, Nairobi.
36 pp., fold map.

A report on vegetation, soil erosion problem, and grazing in the Ukamba, Kikuyu, Kamasia and West Suk and Central and Northern Kavirondo Reserves of Kenya. It also gives some recommendations to tackle soil erosion problems such as reconditioning, stock removal and rest.

Land degradation/Vegetation cover/Impacts/Closure

LAND PREPARATION


(not available for annotation)

Management practices

LAND CONDITION AND POTENTIAL WITHIN THE PERKERRA CATCHMENT AREA

Department of Agriculture, Nairobi. (cyclostyled report)

(not available for annotation)

Baringo District
565 PRATT, D.J. 1963

RESEEDING DENUDED LAND IN BARINGO DISTRICT, KENYA

E. Afr. Agric. for. J. 29:78-91
3 figs., 10 tables, 2 plates, 6 refs.

Deals with techniques of reseeding denuded lands with perennial grasses at three experimental stations in Baringo District (Ngambo, Radat, Sabur). Test includes fourteen different grass species.

Baringo District/Reseeding

566 PRATT, D.J. 1964

RESEEDING DENUDED LAND IN BARINGO DISTRICT, KENYA. TECHNIQUES FOR DRY ALLUVIAL SITES

1 fig., 17 tables, 2 plates, 6 refs.

Describes the methods of reseeding denuded alluvial sites at Marigat Baringo District. Method includes the use of ploughing, fallowing, strip cultivation, seed bed and protection. Seven different grass types were tested.

Baringo District/Marigat/Reseeding

567 PRATT, D.J. 1977

RANGELAND MANAGEMENT AND ECOLOGY IN EAST AFRICA

Hodder and Stoughton, London.

(not available for annotation)
RELATIONSHIP OF RUNOFF TO RAINFALL

E. afr. Agric. For. J. 27:73-75 (special issue)
3 pp., 1 table

Experimental report dealing with the relation and prediction of storm flow from rainfall distribution and intensity. It also presents tests on the effects of change in land use and antecedent soil moisture conditions on the effect of storm flow.

Prediction/Rainfall distribution/Rainfall intensity/Land use/Soil moisture

NATIONAL SOIL FERTILITY AND PLANT NUTRITION RESEARCH PROGRAMME

Republic of Kenya, Ministry of Agriculture
51 pp., 3 tables, 37 refs.

Study relates the overall soil fertility management to soil chemical and physical properties, climatic data and moisture availability, and different land use to develop suitable technology for crop production through technically and economically appropriate input of mineral and organic fertilizers. Focuses on the chemistry of the soils, nutrients, foods and feeds, and the development of analytical techniques.

Physical properties/Chemical properties

PRELIMINARY DIAGNOSIS OF LAND USE PROBLEMS AND AGROFORESTRY POTENTIALS IN NORTHERN MBERE DIVISION, EMBU DISTRICT, KENYA

16 pp., 2 figs., 2 tables, 15 refs.

Discusses the use of alley cropping where trees are closely planted along the contour in form of bunds to control soil erosion, and provide green manure mulch during the rainy season, and to be used for fuelwood, forage and other products.

Embu District/Mbere/Agroforestry/Alley-cropping/Mulching
MAGARINI LAND SETTLEMENT PROJECT SOIL CONSERVATION AND MANAGEMENT. ANNEX 9

C.P. McGowan and Associates Pty. Ltd.

The report deals with the present factors influencing erosion hazard and soil conservation practices and methods. Topics covered include: cover crops, stubble mulching, rotations, minimum tillage, strip cropping, ridging, subsoiling, diversion channels, terraces, waterways stock unit. Gives some recommendations.

Management practices/Structural methods

SOIL EROSION IN MACHAKOS DISTRICT. SURVEY OF AGRICULTURE AND LAND USE VOL. 3.


A comprehensive report on the area, geology, soils, topography, climate, hydrology, natural vegetation, land use, the erosion problems: sediment sources (gully, rill, sheet wash, stream bank erosion) their description and their distribution to land use parameters (cultivated, grazing, road surface). It also gives suggested measurements for sheet wash, rill, gully erosion on cultivated, grazed and road surfaces.

Machakos District/Measurements/Water degradation/Soil and land degradation

A RECONNAISSANCE SURVEY OF EROSION PROCESSES IN MACHAKOS DISTRICT


Deals with the extent, cause, spatial distribution and land use of gully and sheet erosion as determined and evaluated from systematic reconnaissance flight survey of Machakos District.

Machakos District/Survey/Land use/Gully erosion/Sheet erosion
The study discusses the extent, causes, effects and the socio-economic processes influencing soil erosion in the region. The study describes what accounts for the failure of soil and water conservation programmes. The study proposes a national soil and water conservation strategy and discusses the importance of external aid.

**Causes/Impacts/Failures/Policies**

**575** REPUBLIC OF KENYA 1974

WATER CONSERVATION PROGRAMME - OVERALL PLAN FOR IMPLEMENTATION

Government Printer, Nairobi.

(not available for annotation)

Soil and water conservation/GoK

**576** REPUBLIC OF KENYA 1975

WATER CONSERVATION AND DEVELOPMENT IN TAITA HILLS

Ministry of Water Development, Nairobi.

49 pp., 3 figs., 2 tables, 19 refs., appendix A.

Paper describes the physical attributes of the area - geology, physiography, hydrology and water potential. Also discusses and describes appropriate soil and water conservation measures and proposes a continuing programme of activity with estimates of manpower and cost. Details on instructions for assembling and erecting of gabions are given in the appendix.

Taita-Taveta District/Soil and water conservation/Socio-economic aspects /Construction/
REPUBLIC OF KENYA 1988

RESOLUTIONS FROM A KANU AND COUNTY COUNCIL LEADERS SEMINAR ON SOIL AND WATER CONSERVATION HELD FROM 20TH-30TH MARCH, 1988, ELDORET.

MOA, Soil and Water Conservation Branch, Rift Valley Province
46 pp.

Report contains resolutions and recommendations passed in a seminar attended by commissioners of the Permanent Presidential Commission on Soil Conservation and Afforestation, as well as KANU and county council officials from seven districts of Rift Valley Province.

Soil and water conservation/Revegetation/GoK

RICE, J.H. 1947

SOIL CONSERVATION ORGANIZATION IN FORT HALL DISTRICT AS ADAPTED FROM "NGWATIO" SYSTEM

E. afr. Agric. J. 12:200-201

Deals with the use of African traditional communal work and the involvement of the local leaders (chiefs and parishioners) in the planning of soil conservation work.

Organization

ROCHELEAU, D., WEBER, F.,FIELD-JUMA, A. 1988

AGROFORESTRY IN DRYLAND AFRICA

ICRAF, Nairobi.
311 pp., 142 refs., 7 appendices, ill.

The book is divided into three parts. The second part deals with agroforestry practices as it relates to soil and water conservation and fuel wood supply. Analyses tree species in use, management of agroforestry systems, the design of conservation structures, and the benefits of agroforestry.

Agroforestry/Economic considerations/Forest management/Structural methods/Design
RAINFALL EROSIVITY IN KENYA - SOME PRELIMINARY CONCLUSIONS.

4 figs., 3 tables, 12 refs.

Gives seasonal variation of erosivity for Katumani research station for the period 1974-1981 as calculated by the P2/P and EI30 indices in relation to vegetation cover and soil moisture deficit and an erosion risk map is given as determined by the P2/P value.

Machakos District/Katumani/Vegetation cover/Soil moisture/USLE

ADAPTATION OF INDIGENOUS SHEEP AND GOATS TO SEASONAL CHANGES OF FORAGE ON A SEMI-ARID THORNBUSH IN NORTHERN KENYA


(not available for annotation)

PRELIMINARY SELECTION OF PASTURE PLANTS FOR SEMI-ARID AREAS OF KENYA

E. Afr. Agric. For. J. 36:49-57
4 tables, 1 ref.

Deals with 5 years experimental study to select useful pasture grasses and legumes that can be adapted to the semi-arid areas of Machakos and Baringo. Test involved 19 grass and legume types.

Machakos District/Baringo District/Crop vegetation cover
SCHERER, L. 1982

RUNOFF HARVESTING FOR KYUSO AND EASTERN DIVISION.

Internal Memo.
MALD, Kitui District.

(not available for annotation)

Kitui District/Water harvesting

SCHERER, L. 1989

KITUI ASAL PROJECT: SOIL CONSERVATION PROBLEMS AND SOLUTIONS


DAE, SIDA
3 tables, 1 ref. appendix.

Paper addresses itself to the social and technical problems hindering soil conservation programmes in the Kitui ASAL Project. For each category of problems the paper provides some solutions. Gives tables showing the number of accomplished tasks in the project.

Kitui District/Evaluation

SESE, L.O. 1978

LAND EVALUATION AND SOIL CONSERVATION IN PART OF NAKURU DISTRICT

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi.

33 pp., 2 figs., 8 tables, 7 refs.

Report on a survey of twenty large scale farms and ten small farms in part of Nakuru District on land utilization and soil conservation. It points out the negligence of the previous soil conservation measures (terraces, cutoffs and waterways) in the subdivision of land due to population pressure.

Nakuru District/Land use/Structural methods/Evaluation/Overpopulation
SHAXSON, T.F. 1981

SOIL AND WATER CONSERVATION IN EMBU AND MERU DISTRICTS, KENYA: SUMMARY


Presents causes and effects of soil erosion in the areas below 4500 ft. of Embu and Meru - medium and low potential areas. Recommends high infiltration by maintaining the soil surface in a porous condition, runoff detention, maximum ground cover through good land use system and qualified extension personnel, and making conservation an integral part of farming system. Lists a suggested programme of assistance to Government of Kenya.

Embu District/Meru District/Causes/Impacts/Infiltration

SIMIYU, S.C. 1989

SOIL AND WATER CONSERVATION RESEARCH - KATUMANI EXPERIENCE


Gives the historical background and the current development of soil and water management in the arid and semi-arid regions of Kenya. Reviews the research on soil and water conservation at Katumani and the current research activities in the institute. Current programmes include mulching and ridging studies, reclamation of eroded lands, and utilization of runoff water from surrounding lands for crop production in semi-arid regions.

Machakos District/Katumani/Mulching/Ridging/Reclamation

SINDIGA, A. 1989

POPULATION PRESSURE AND RESOURCE DEGRADATION IN MAASAILAND


This paper examines the vegetation and intensity of population pressure by land potential in Kenya using Kajiado and Narok Districts as the example. Describes the field research, and tabulates and interprets the results.

Kajiado District/Narok District/Vegetation cover/Overpopulation
SKETCHLEY, H.R., SCILLEY, F.M., MBUVI, J.P., WOKABI, S.M.  
1978  
USAID  
RECONNAISSANCE SOIL SURVEY OF MACHAKOS-KITUI-EMBU AREA, KENYA  
USDA, Soil Conservation Service and Republic of Kenya, Ministry of Agriculture, Project Management and Evaluation Division in cooperation with USAID.  
322 pp., 12 figs., 55 refs., fold map, appendix  
Covers the different types of soils, geology, geomorphology, climate present land use, soil fertility, tillage and soil conservation of the Machakos-Kitui-Embu Area.  
Land use/Soil and water conservation/Soil types/Chemical properties/Tillage  

SKETCHLEY, H.R., SCILLEY, F.M., MBUVI, J.R., WOKABI, S.M. 1978 USAID  
RECONNAISSANCE SOIL SURVEY, LAKE BARINGO-KERIO VALLEY AREA.  
USDA, Soil Conservation Service and Republic of Kenya, Ministry of Agriculture, Project Management and Evaluation Division in cooperation with USAID.  
311 pp., 10 figs., 22 refs., fold map, appendix.  
Describes the climate, geology, geomorphology, hydrology and soils of the area. Assesses sheet, rill and gully erosion. Gives overgrazing and shifting cultivation as the causes of erosion and evaluates soil conservation practices of the area.  
Baringo District/Soil types/Water degradation/Overgrazing/Land use  

SMITH, P.D. 1983  
DBT  
SOIL CONSERVATION IN THE TUGEN FOOTHILLS OF BARINGO  
10 pp., 2 figs., 5 refs.  
Discusses soil conservation practices currently under use in the Tugen Foothills. Describes research needs specially concerning erosion and runoff from stoney hill sides. Points out the long term solutions to range management problems and suggests solutions to the possible alternate strategies.  
Baringo District/Soil and water conservation
592 SMITH, P.D., CRITCHLEY, W.R.S 1983 IDS

THE POTENTIAL OF RUNOFF HARVESTING FOR CROP PRODUCTION AND RANGE REHABILITATION IN SEMI-ARID BARINGO

19pp., 4 figs., 1 table, 11 refs.

Describes test results of contour ridging, semi circular ridges, impounding of road runoff and zero cultivation methods of runoff harvesting for crop production and range rehabilitation carried out by the Baringo Pilot Semi-arid Area Project.

Baringo District/Water harvesting/Contouring/Tillage/Reclamation

593 SNOWY MOUNTAIN ENGINEERING CORPORATION 1977 SD

MAGARINI LAND SETTLEMENT PROJECT SURFACE WATER INVESTIGATIONS. ANNEX 2.

2 tables.

Report on the method of estimating runoff using the CN (USSCS) method for the study area. Gives table on estimates of monthly runoff volumes, trap plan for the Sabaki River Sediment load. Recommends contour ploughing and terracing to reduce sediment transport from plots.

USLE/Sedimentation/Contouring/Terraces


SOILS OF THE SEMI SAVANNAH ON THE NORTH-EASTERN KENYA

16 pp., 2 figs., 2 plates, 12 refs.

Deals with topography, soil genesis and drainage. Discusses geomorphology and the erosional history of the plains. Lays emphasis on the problem of overgrazing.

Physiographical parameters/Soil development/Overgrazing
MOUNT KENYA AREA, ECOLOGICAL AND AGRICULTURAL SIGNIFICANCE OF SOILS - WITH 2 SOIL MAPS.

University of Berne, Switzerland

(not available for annotation)

Soil types

IMPACT OF WEATHER ANALYSIS ON AGRICULTURAL PRODUCTION AND PLANNING DECISIONS FOR THE SEMI-ARID AREAS OF KENYA

6 figs., 14 tables, 43 refs.

Presents a case study in which 'effective rainfall' for Katumani Composite B-type maize, grown at Katumani, Machakos District, is evaluated for each of the 48 wet seasons in the 24-year record. The newly developed analysis takes into account rainfall, evaporation, soil depth and water holding capacity, and growth characteristics of the crop influencing water uptake and yield.

Machakos District/Katumani/Soil productivity/Physical properties/Rainfall characteristics

CAMEL PASTORALISM AND DESERTIFICATION IN NORTHERN KENYA

Desertification Control. UNEP No. 8:2-8
7 pp., 1 table, 3 plates, 24 refs.

Paper gives background of the area, lack of awareness of the people on desertification in relation to overgrazing and deforestation, cover and stocking. Compares the increase of camel population and reduction cattle; the camel being efficient in use and food production, utilizes trees, shrubs and grasses, spreads when grazing and has less trampling effect. Points out the need to offer attractive alternative investment in order to destock animal population.

Land degradation/Overgrazing/Deforestation
NATIONAL SOIL AND WATER MANAGEMENT RESEARCH PROGRAMME

Proposal for Support by Swedish International Development Authority. 81 pp., 19 refs.

Report sets out a proposal framework for a national soil and water management research programme for KARI and recommends a number of projects which are scientifically viable for the Kenyan context. Gives a comprehensive view of: national policy and objectives for soil and water management research; what the KARI scientists would like to do; internationally recognized valid areas for scientific inquiry in soil and water management; the views of the donors, principally SIDA, on what are fundable projects.

Policies

RESEARCH ACTIVITIES CARRIED OUT BY THE SOIL AND WATER CONSERVATION SECTION, N.D.F.R.S., KATUMANI.


Discusses primary results of research carried out at Katumani in cooperation with the Machakos Integrated Development Project. Research includes monitoring of erosion on rangeland and testing cheap and simple systems (Gerlach trough types and erosion pins) for measuring erosion on rangelands. Test of the effect of different physical soil conservation methods like terraces, buffer strips, and contour tillage, are included.

LAYING OUT CONTOURS IN ESTABLISHED COFFEE

A short article describing an easy way of carrying out levelling operations in coffee fields and laying out terraces.
THE WEEP IRRIGATION TRIALS

DAE, SIDA
Appendix

Paper presents the findings of irrigation trials using microscopic fibre tubing made of polyethylene. The experiments investigated such aspects as installing and handling, the width and depth of wetted area, effect of sunlight, water consumption, insect attacks on tubing, and the economic life of the tube. Gives problems associated with the tube.

Water resources
A study tour report that covered Kenya and Ethiopia. In Kenya the students went to Murang'a, Nyeri and Kitui. Appendices include the soil conservation profiles of Nyeri and Kitui districts, as well as socio-economic and technical evaluation of soil conservation in the two districts.

Nyeri District/Kitui District/Education/Evaluation

Study examines the integration and economics of livestock production in the farming system, livestock development, soil and water conservation in relation to livestock production, and peoples' participation in conservation work in high potential areas. Examines the same issues for the medium potential areas but also adds agroforestry as a new link in production chain.

Murang'a District/Farming systems research/Agroforestry

Deals with the ecology of the district, land condition, soil erosion problems and overgrazing.

Narok District/Land use/Impacts/Overgrazing
KIAMBERE HYDRO-ELECTRIC POWER PROJECT: PRECONSTRUCTION ENVIRONMENTAL IMPACT STUDY


Contains 10 maps on Tana River Basin, location of the study area, immediate catchment area, project physical features, reservoir levels, study area and project area boundaries, soils, vegetation, land use, sub-location boundaries, administrative boundaries and economic centres, archaeological sites, landscape features and recreational sites.

Environmental impact assessm.

KIAMBERE HYDRO-ELECTRIC POWER PROJECT: PRECONSTRUCTION ENVIRONMENTAL IMPACT STUDY


Chapter 3 of the text has sketchy notes on reservoir characteristics and physical characteristics of Kiambere Dam. Chapter 4 looks at the present environment of the area with special focus on climate, soils, vegetation, wildlife, aquatic biology, population, land use, economic activities, community health, archeology and traditional sites. Chapter 5 covers hydrology, whereas chapter 6 contains notes on environmental monitoring, and some recommendations.

Dams/Environmental impact assessm.

KIAMBERE HYDRO-ELECTRIC POWER PROJECT: PRECONSTRUCTION ENVIRONMENTAL IMPACT STUDY


Annex 4 describes soils and concludes that the major reclamation practice would be to provide a vegetation cover to protect the soil from further erosion. Recommends afforestation to prevent further erosion on the hillslopes. Annex 7 deals with sociology and land issues common among the population of the area.

Environmental impact assessm./Dams/Revegetation/Socio-economic aspects
SOIL AND WATER CONSERVATION PROGRAMME - MASINGA DAM CATCHMENT AREA.

EXECUTIVE SUMMARY

49 pp., 11 figs., 8 tables.

Discusses means of controlling soil erosion and conserving water resources within the catchment, and reducing siltation in Masinga Reservoir. Describes the physical environment, regional socio-economic environment, and the regional soil erosion problem. Proposes a soil and water conservation programme for the area.

Sedimentation/Dams/Socio-economic aspects/Soil and water conservation

FORWARD PLANNING PROGRAMME (1979-1984) OF THE TANA RIVER DEVELOPMENT AUTHORITY

KADOC NO. 40111

45 pp., fold map, scale 1:3,000,000, 8 refs.

A forward planning programme from 1979 to 1984 for the Tana River Development. The current situation is outlined, showing progress of work in Upper Tana Reservoir, large and small hydroelectric power prospects and irrigation projects. Also gives information on collection of hydrological records, catchment management and Athi River Basin Development. The development potentials are studied and selected, then project implementation schedules are given.

Policies

SOIL AND WATER CONSERVATION PROGRAMME MASINGA CATCHMENT AREA. DRAFT (ANNEXES)

Atkins Land and Water Management

526 pp., 42 figs., 90 tables, 11 plates, 132 refs.

This consultancy report contains six annexes covering hydrology and sedimentation, soils and soil erosion, land use and runoff characteristics. Conservation practices, sediment input into the reservoir, estimates of bed load transport, potential impact of soil and water conservation measures on the life of Masinga reservoir, rainfall erosivity, erodibility, present erosion status, hazard, susceptibility, tolerance, priority area, conservation needs and measures are discussed in details.

Evaluation
RAINFALL INTENSITY - DURATION - FREQUENCY DATA FOR EAST AFRICA

30 pp., 17 figs., 8 tables.

Gives tables and graphs of rainfall intensity and frequency of occurrence for the 15, 30, 60 min. and 3, 6, and 24 hours storms for 16 stations (7 in Kenya) in East Africa.

Rainfall intensity/Rainfall duration/Rainfall frequency

A POCKET DIRECTORY OF TREES AND SEEDS IN KENYA

Directory gives 90 tree species - indigenous, exotic and fruit, - listed alphabetically by their botanical names. Gives the suitable climatic conditions for the growth of every tree. Seeds and seedling suppliers, are listed by province at the end of chapter four.

Nurseries/Revegetation

AN EVALUATION OF THE APPLICABILITY OF THE CONSISTENCY C5_10 INDEX AND THE WATER DROP METHODS FOR PREDICTING CRUSTING, RUNOFF AND SOIL LOSSES FOR SOME KENYAN SOILS.

Project report where the Consistency C5_10 index and the water drop method of aggregate stability were tested on 15 different Kenyan soils to assess their value in predicting crusting, runoff and soil loss.

Soil types/Aggregates/Sealing and crusting/Consistency/Prediction,
TEFERA, F. 1983
THE EFFECT OF NARROW GRASS STRIPS IN CONTROLLING SOIL EROSION AND RUNOFF ON SLOPING LAND
MSc. Thesis, University of Nairobi, Department of Agricultural Engineering, Nairobi.
140 pp., 13 figs., 11 tables, 14 plates, ref. appx.
A research study of the effect of different grass strips in reducing soil loss and runoff on a 10% ground slope Kabete Nitisol. Also gives results on soil erodibility, runoff coefficient, depth of deposition, and erosivity indices. Thesis also includes simulated rainfall trials and field observations in Nandi and Narok Districts.
Nairobi District/Kabete/Grass strips/Slope angle/Run-off plots

TEMPANY, H. 1949
THE PRACTICE OF SOIL CONSERVATION IN THE BRITISH COLONIAL EMPIRE.
106 pp., 7 figs., 22 plates, 31 refs.
The publication deals with methods of soil conservation i.e., terracing, ridging, trenching contour bunds, silt pits, storm drains, gully control, cultural practices like contour ploughing, contour ridge planting, tied box ridges, mulching, strip cropping, rotations grass strips, hedges, live wash stopes, protective covers, wind breaks, control on grazing land, destocking, bush burning, erosion around homes, machinery and tools, and legislation. Legislation in Kenya is separately dealt.
Management practices/Structural methods/GoK

THOMAS, D.B. 1961
REPORT ON AN EXPERIMENT TO COMPARE THE EDGE EFFECT OF DIFFERENT PLANTS FOR FACING BENCH TERRACES
Katumani, Rep/2/111/9
(unpublished)
6 pp., 2 tables, 3 plates.
Report of an experimental trial of three seasons (1959-1960) on the edge effect of seven grass types and stone bank on the yield of adjacent crops. Grasses showed a marked edge effect up to six feet. Recommends stone wall and Makarikari grass.
Machakos District/Katumani/Crop vegetation cover/Terraces/Stabilisation
THOMAS, D.B. 1974

AIR PHOTO ANALYSIS OF TRENDS IN SOIL EROSION AND LAND USE IN PART OF MACHAKOS DISTRICT, KENYA

MSc. Thesis University of Reading.
91 pp., 19 figs., 11 tables, 24 plates, 93 refs.

Thesis analyses 1948 and 1972 aerial photo to determine changes in land use and soil erosion trends. It discusses the growth of gully and sheet erosion between 1948 and 1972, points out increase in length of terracing, inadequate bank cover of bench terraces, and gully formation due to failure in diversion ditches.

Machakos District/Aerial photo analysis/Land use/Gully erosion/Sheet-erosion

THOMAS, D.B. 1975

LAND USE AND SOIL EROSION IN PART OF KALAMA LOCATION, MACHAKOS DISTRICT

Kijani 1(1): 16-17

Deals with gully erosion developed from cattle tracks and discusses the problems of land use, associated with soil erosion from a study of the 1948 and 1972 aerial photo. Also includes the problems of individual approach and uncontrolled terracing.

Machakos District/Kalama/Gully erosion/Land use/Terraces

THOMAS, D.B. 1978

SOME OBSERVATION ON SOIL CONSERVATION IN MACHAKOS DISTRICT, KENYA, WITH SPECIAL REFERENCE TO TERRACING

2 figs., 4 tables, 16 refs.

Discusses the results of a survey of soil conservation practices on 121 farms in Machakos District. Covers the "fanya juu" terraces, cutoff ditches, vegetative cover on terrace banks and grazing lands.

Machakos District/Cut-off drains/Terraces/Stabilisation
622 THOMAS, D.B. 1978

SOME THOUGHTS ON SOIL EROSION BASED ON MACHAKOS DISTRICT, KENYA

Address given to NCCK Conference, Limuru. 16 pp.

Describes erosion, relates erosion to rainfall, the significance of erosion - depletion of soil potential both in-depth and fertility, and the sedimentation problem. Address covers the recognition of change, impact of settlements, denuded grazing-lands, acceptable soil loss limits according to soil, and the misconceptions of neglect of rainfall impact and ground cover and on decreasing rainfall.

Machakos District/Land degradation/Impacts/Rainfall characteristics/-Vegetation cover

623 THOMAS, D.B. 1980

AGROFORESTRY IN RELATION TO SOIL AND WATER CONSERVATION: THE UTILIZATION OF STEEP SLOPES


Paper reviews some of the problems of erosion related to land use on steep slopes and examines the possibilities for control by cultural and physical measures.

Agroforestry/Land use/Physiographical parameters/Management practices/-

624 THOMAS, D.B. 1980

THE USE OF AIR PHOTOS IN LAND USE PLANNING WITH SPECIAL REFERENCE TO SURVEYING LAND USE AND EROSION PLANNING SOIL AND WATER CONSERVATION MEASURES

Paper prepared for Land Use Planning, Egerton College. 11 pp., 12 refs.

Review the ways in which aerial photo can be of assistance in surveying land use, erosion and planning conservation measures. Details include assessing extent and severity of erosion, catchment planning specially surface dams, monitoring the changes in land use and erosion over a period of years, farm and ranch planning, and qualitative and quantitative assessment of erosion inventories, causes and vegetation cover.

Aerial photo analysis/Land use/Soil and water conservation
THE ENVIRONMENTAL IMPACT OF LAND USE CHANGES IN KENYA WITH SPECIAL REFERENCE TO SOIL AND WATER CONSERVATION

An Input: GOK/UNEP/UNDP Project on Environment and Development. 44 pp., 41 refs.

The paper contains five sections where Section I deals with identifying the changes in land use taking place, and next section shows the impact of these changes on the environment. Section III attempts to show how far the government has been able to direct and control land use and reduce the environmental problems arising from development. Last two sections cover education, research and concluding remarks.

Land use/Environmental impact assessm./Education/GoK/Soil and water conservation

PERENIAL GRASSES FOR LOW RAINFALL AREAS OF KENYA WITH SPECIAL REFERENCE TO THE REVEGETATION OF DENUDED GRAZING

Address given to Seminar on Agroforestry sponsored by NCCK and CDES at Machakos 6 pp., 7 refs.

A short article based on personal experience and deals with the present state of grazing land, what progress was made in developing and utilizing the resources, and examines some of the possibilities and the problems. It covers overgrazing, desertification, sedimentation of reservoirs, climatic fluctuations, erosion and runoff, improving infiltration, grass splits and species, grass seeds, protection, bush and termites, and priorities for revegetation.

Overgrazing/Land degradation/Sedimentation/Dams/Revegetation

TECHNICAL PAPER ON SOIL AND WATER CONSERVATION. APPENDIX 1.


A consultancy report covering soil conservation on cropland, rehabilitation of degraded land by the method of restoring ground cover through grazing control, reseeding and selection of adaptable grass species, control of sedimentation, gully stabilization through gabion weirs, road drains, water harvesting for crop production and pasture, water supply and education. Lists four well suited grass species.

Sedimentation/Soil and water conservation/Reclamation/Physical infrastructures/Water harvesting
THOMAS, D.B. 1982

EROSION, SEDIMENTATION, LAND USE AND CONSERVATION

In: Kerio Valley Development Authority, Republic of Kenya, "The Socioeconomic Impact of the Turkwell Gorge Multipurpose Project". Nairobi, Chapter V.
32 pp., 4 figs., 2 tables.

Describes the process, factors affecting and distribution of erosion within the Turkwell Catchment. It also gives sedimentation processes and rates. Estimates rates of erosion.

Baringo District/Soil and water conservation/Reclamation/Prediction

THOMAS, D.B. 1983

THE DESIGN OF ARTIFICIAL WATERWAYS FOR DENSELY SETTLED AREAS OF STEEP LAND.

4 figs., 5 tables, 20 refs.

Reviews data needed and factors to be considered in the design of artificial waterways based on the estimate of runoff coefficient, area, slope, ground cover, soil type, availability of land and capital for either grassed, partly or fully stone lined waterways.

Design/Waterways/Vegetation cover/Physiographical parameters

THOMAS, D.B. 1984

UNIVERSITY EDUCATION FOR SOIL CONSERVATION WITH SPECIAL REFERENCE TO PROGRAMMES AT THE UNIVERSITY OF NAIROBI.

Regional Soil Conservation Unit/SIDA
1 ref.

Paper reviews the role of the university in education for soil conservation and looks critically at the strength and weaknesses of existing programmes. Paper distinguishes between the capacities of a degree graduate and that of a diploma graduate in conservation work. Argues why soil conservation as a scientific discipline is ideal for postgraduate students, and describes programmes at the University of Nairobi, as well as career prospects for soil conservation specialists.

Education/GoK
SOIL AND WATER CONSERVATION ON GRAZING LAND IN SEMI-ARID AND SUBHUMID AREAS


The paper looks at the state of the knowledge about the causes of degradation and desertification, and also discusses procedures for reclaiming denuded and eroded land. The paper reviews the ideas, at the time, in light of research findings and experience.

Land degradation/Causes/Reclamation/Soil and water conservation

COMMON FEATURES OF SUCCESSFUL STRATEGY IN CONSERVATION POLICY


The paper briefly outlines the main requirements of a conservation policy and identifies those features that are common to a successful strategy. The paper analyses the conservation drawbacks witnessed in the past, and the necessary features for a strong conservation policy.

Policies

CONSERVATION STRUCTURES: THE NEED FOR KENYAN STANDARDS AND SPECIFICATIONS

Paper prepared for the Annual Seminar of Kenya Agricultural Engineers Kabete, Nairobi, 6-7 July, 1989 4 pp., 7 figs. 6 refs., 2 appendices.

The paper identifies the problems which arise in soil conservation in general, due to lack of clear definition of standards and specifications. The paper poses challenging discussions on design criteria for the different soil conservation structures already in use, the application of the structures, and on how to evaluate the success of the structures.

Structural methods/Evaluation/Design
SOIL EROSION IN THE ASAL AREAS - WHAT HAVE WE LEARNED?

Ministry of Agriculture, Soil and Water Conservation Branch
5 pp.

Paper takes stock of the current knowledge about soil erosion in arid and semi-arid lands. Lists the sites where soil erosion could be quite severe, and discusses the significance of erosion rates. Also discusses rainfall fluctuation and its impact on land-use patterns and soil erosion, and soil surface sealing, as a major problem preventing rainfall infiltration. Argues that ground cover is the most important factor in controlling erosion.

Land degradation/Soil loss tolerance/Rainfall characteristics/Sealing and crusting /Vegetation cover

REPORT ON RAINFALL SIMULATOR TRIALS IN IUNI, MACHAKOS, KENYA.

18 pp., 1 fig., 3 tables, 4 refs.

Deals with a trial of 25, 50, 69 and 100 mm/hr simulated rainfall applied on 1 by 1.5 m plots to assess the effect of ground cover on soil erosion. Study shows reduced erosion on good ground cover grazingland and erosion on bare ground depends on the extent and nature of the surface crust. High intensity rainfall produced high rates of runoff.

Rainfall simulation/Run-off plots/Vegetation cover/USLE/Rainfall intensity

A PROPOSED DESIGN PROCEDURE FOR STEEP BACKSLOPE TERRACES IN THE SEMI-ARID AREAS OF MACHAKOS DISTRICT

20pp., 2 figs., 5 tables, 15 refs.

A nomograph and a formula for designing and calculating the depth of steep back slope terraces that can hold all runoff are discussed. Nomograph uses minimum infiltration rate, rainfall data, terrace spacing and ground slope.

Machakos District/Design/Terraces
637 THOMAS, D.B., BARBER, R.G. 1983 DBT
THE MANAGEMENT OF ERODIBLE SOILS IN EAST AFRICA - A CONSERVATION PLANNING MODEL FOR SUPPORT PRACTICES.
1 fig., 36 refs.
Discusses factors like farm holding, climate, waterways, slope, soil depth, erodibility and drainage that influence decision making in choosing conservation support practices. The article also reviews existing support practices, mainly ridging, grass strips, and the different types of terraces. It presents a key and a flow chart for decision making on small scale farming.
Soil erodibility/Rainfall characteristics/Ridging/Grass strips/Waterway

638 THOMAS, D.B., BARBER, R.G. 1983 DBT
THE CONTROL OF SOIL AND WATER LOSSES IN SEMI-ARID AREAS: SOME PROBLEMS AND POSSIBILITIES
The Kenyan Geographer 5(1 & 2):72-79 (special issue)
1 fig., 23 refs.
Deals with the seriousness of soil erosion and land degradation (desertification) and the controlling of soil erosion in the grazing and crop land of the semi-arid areas with special reference to works carried out at Machakos. Gives data on infiltration, runoff, surface seal and regeneration of vegetation.
Machakos District/Land degradation/Infiltration/Sealing and crusting/-

TERRACING OF CROPLAND IN LOW RAINFALL AREAS OF MACHAKOS DISTRICT, KENYA
7 pp., 2 figs., 4 tables, 19 refs.
Prepresents proposals for the design of terraces to retain all runoff and a nomograph for calculating the depth of storage required is discussed.
Machakos District/Design/Terraces
640 THOMAS, D.B., BIAMAH, E.K. 1989 DBT, SIDA

THE ORIGIN, APPLICATION AND DESIGN OF THE 'FANYA JUU' TERRACE

10 pp., 3 figs., 7 refs.

This paper looks at the origin of the 'fanya juu' terrace and its current application. The advantages and disadvantages are discussed and the design principles are reviewed. The paper highlights areas requiring research and investigation and makes recommendations for specific situations.

Terraces/Design


REVIEW OF SOIL AND WATER CONSERVATION RESEARCH IN THE SEMI-ARID AREAS OF EASTERN KENYA.


Review of research and development work on soil and water conservation under way by the Government of Kenya, UNDP, FAO, UDA USAID - Dryland Farming Research Development and Cropping Systems Research Project. Paper also covers research and extension links and recommends on long term research needs, desirability of increased assistance, institutional development and farming systems approach.

Farming systems research/Extension/Policies


RUNOFF, EROSION AND CONSERVATION IN REPRESENTATIVE BASIN IN MACHAKOS DISTRICT, KENYA


The paper assesses runoff and sediment yield at the outfall of a catchment and runoff and soil loss from simulated rainfall on small plots within the catchment representing different land use. Results show high runoff and soil loss from bare land and much lower from new pasture. Recommends the use of conservation practices on cultivated land and improving cover of pasture land with a critical cover of 15-20% being important.

Machakos District/USLE/Rainfall simulation/Land use/Soil and water conservation
THOMPSON, A.W. 1939

SOME ASPECTS OF SOIL CONSERVATION BASED ON OBSERVATIONS IN THE CENTRAL AND NORTHERN KAVIRONDO NATIVE RESERVES

E. Afr. Agric. J. 4:272-277

1 table.

Discusses the causes of soil erosion mainly of rainfall, slope, soil cover, density of population and the problems of soil conservation in the native reserves under shifting cultivation. It also presents different ways of minimizing soil erosion under nine specific land conditions.

Causes/Land use/Soil and water conservation/Soil erodibility

TJERNSTROM, R. 1989

REPORT ON TECHNICAL AND SOCIO-ECONOMIC EVALUATION OF SOIL CONSERVATION BY THE MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT


DAE, SIDA

3 figs., 2 tables, 4 refs.

Paper reviews studies carried out in Keiyo Marakwet, Nyeri and Kitui Districts to describe the obstacles to the implementation of the soil conservation programme and to present suggestions on how to change the programme in order to attain its long-term goals. Paper points out that farmers have problems in maintaining terraces and cut-off drains. Suggests that group labour be encouraged and gives some suggestions on how it should be approached.

Maintenance/Terraces/Cut-off drains/Organization/Evaluation

TRAMBER, C.

RECONNAISSANCE SOIL AND VEGETATION SURVEY OF THE AMBOSELI-KIBERENI AREA

Kenya Soil Survey Reconnaissance Paper No. 6 (in cooperation with FAO)

(not available for annotation)

Survey/Soil types/Vegetation cover
SOIL WASH


A speech delivered on the general erosion in coffee plantations and some of the common methods of controlling such as contour planting, terracing, cutoff drains, manuring and mulching.

Contouring/Terraces/Cut-off drains/Mulching

WATER CONSERVATION ACTIVITIES IN ARID AND SEMI-ARID ZONES OF KENYA


Describes the relations of water and soil conservation, the activities in the arid and semi-arid areas, type of water conservation structures, implementation, operation and maintenance of water conservation. The health and socio-economic aspects of water conservation programme are also included.

Water harvesting/Structures/Maintenance/Socio-economic aspects

THE DESIGN AND INSTALLATION OF RUNOFF PLOT EQUIPMENT FOR THE NATIONAL DRYLAND FARMING RESEARCH STATION, KATUMANI, MACHAKOS


Describes the design criteria considered for the runoff plots equipment installed at Katumani Research Station. It gives soil type and background of the field.

Machakos District/Katumani/Design/Run-off plots/Installations
RUNOFF AND SOIL EROSION FOR AN ALFISOL IN KENYA

ULSAKER, L.G., KILEWE, A.M. 1983

E. Afr. Agric. For. J. 44:210-241 (special issue)
9 figs., 20 tables, 49 refs.

Describes the site and installation of 12 runoff plots at Katumani and soil erosion study carried out for three years under different soil management practices. Discusses effects of soil management practices on agronomic results, rainfall erosivity and soil erosion, tillage, soil moisture content at different depths, soil erodibility contouring effect, cover-management effect on soil loss.

Machakos District/Katumani/Run-off plots/Management practices/Soil erodibility

RELATING RAINFALL EROSIVITY FACTORS TO SOIL LOSS IN KENYA

ULSAKER, L.G., ONSTAD, C.A. 1984


USLE/Rainfall characteristics

ASSESSMENT OF THE PROBLEM OF DESERTIFICATION AND REVIEW OF ONGOING AND PROPOSED ACTIVITIES TO IMPLEMENT THE PLAN OF ACTION TO COMBAT DESERTIFICATION IN THE REPUBLIC OF KENYA

UN SUDANO SAHELIAN OFFICE 1979

New York
38 pp., 3 figs., 3 tables.

Deals with the nature of the problem of desertification, areas affected, cause of desertification, forms of desertification, and the socio-economic impact. It gives general information on Kenya - population, terrain, climate, natural resources and development strategies. The paper also discusses desertification control planning, the national strategy and ongoing activities.

Land degradation/Causes/Socio-economic aspects/Policies
Chapter 13 of this report lists data arranged in tables collected on household survey in three districts on the following topics: methods used to prevent soil erosion, decrease in size of woodland over the last 10 years, tree replacement, methods being used to replace trees change in soil fertility, steps taken to improve soil fertility, direction of change in soil fertility, change in ground cover over the last 10 years, causes of an increase in ground cover and cause of decrease in ground cover.

Soil and water conservation/Deforestation/Revegetation/Land use

VAN DE WEG, R.F., MBUVI, J.P. 1975

SOILS OF KINDARUMA AREA


Reconnaissance survey of the erosion (sheet and gully) problem of the area. An erosion hazard and land use maps are provided. Warns of the danger of land becoming unproductive if cultivation of steep slopes and present practice continues.

Sheet erosion/Gully erosion/Maps/Slope angle/Soil productivity

VAN WIJNGAARDEN, W.

RECONNAISSANCE SOIL AND VEGETATION SURVEY OF THE TSAVO AREA (MUTITO AND VOI SHEETS)

Kenya Soil Survey Reconnaissance Paper No. 7 (in cooperation with VIDTRO of Netherlands)

(not available for annotation)

Survey/Vegetation cover/Soil types
TURKWELL DAMS AND RESERVOIR RECONNAISSANCE SURVEY, SUMMARY REPORT.
KADOC No. 10134

44 pp., 9 photos, fold map, scale 1:10,000,000.

Summary of a reconnaissance survey on the feasibility of a dam at the Turkwell Gorge. Geology, seismicity, climate, water resources, ecology and land use in the Suam - Turkwell catchment area are reviewed.

Environmental impact assessm./Dams

TURKWELL DAM AND RESERVOIR RECONNAISSANCE SURVEY
KADOC No. 10711

Data Volume
52 pp., 3 figs., 16 tables, 31 graphs, 3 maps scale 1:1,000,000

Data appended to a dam feasibility study on the Turkwell River. Covers soil and geology including fluvial sediment and rock classification as well as water resources with data collected at gauging stations and water quality.

Dams/Water resources

PILOT SOIL AND WATER CONSERVATION PROJECT, EMBU/MERU AREA

FAO, Rome.
47 pp., 2 figs., 5 tables, annex

Deals with a pilot project in Embu District carried by FAO, where grass bunds and trash lines together with sweet potato completely arrested soil erosion. Points out the deterioration of traditional grazing lands, and warns the danger and the need for appropriate measures. Recommendations on the improvement of the farming systems, farm inputs and economic assistance involving the farmers in implementation of improvement works are given.

Embu District/Trash lines/Grass strips/Overgrazing/Socio-economic aspects
WACHIRA, K.K. 1978

SOME PROMISING NATIVE LEGUMES FOR REHABILITATING DEGRADED SUB HUMID KENYA HIGH LAND SOILS


Describes five indigenous legumes that are prevalent on the Thika-Nairobi area that could be used in rehabilitating the sub humid Kenyan highlands.

Nairobi District/Kiambu District/Reclamation/Crop vegetation cover

WAHOME, E.K. 1981

SOIL MANAGEMENT AND CONSERVATION MEASURES IN THE RANGELANDS

Paper prepared for a lecture to be delivered in the National Soil Conservation Training Course in Nairobi, Kenya.
KREMU (FAO / GOK-MOA)
26 pp., 7 figs., 14 refs.

Deals with soil erosion in the rangelands. Points out overgrazing, seasonal grass burning, deforestation and shifting cultivation as practices that greatly contribute to soil erosion processes. It also discusses water erosion intensity, classification and rainfall simulation experiments on rainfall intensity, drop size, plant root density, ground cover (canopy, basal, litter and vegetation type), soil type, topography and human factors.

Overgrazing/Deforestation/Rainfall simulation/Rainfall intensity/Vegetation cover

WAHOME, E.K. 1984

SOIL EROSION CLASSIFICATION AND ASSESSMENT USING LANDSAT IMAGERY: A CASE STUDY IN BARINGO DISTRICT, KENYA

Paper presented for Rangeland Extended Course at the Regional Centre for Services in Surveying, Mapping and Remote Sensing. KREMU.
21 pp., 3 figs., 1 table, 11 refs.

Deals with the use of landsat imagery in classifying and assessing the status of erosion and soil erosion potential in Baringo District at a reconnaissance level based on features and indicators. Gives seven erosion classes. Points out overgrazing, trampling, new land clearing, and poorly regulated agricultural practices (shifting cultivation) as the major erosion controlling factors. Map is included.

Aerial photo analysis/Overgrazing/Land use/Maps
661 WAHOME, E.K. 1989

SOIL EROSION MEASUREMENTS UNDER NATURAL RAINFALL FOR EVALUATING THE UNIVERSAL SOIL LOSS EQUATION IN MANITOBA

An MSC Thesis Presented to the Faculty of Graduate Studies of the University of Manitoba
216 pp., 5 figs. 29 tables, 177 refs.

The study develops and presents a comprehensive field data base on soil loss due to natural rainfall that can be effectively used in evaluating the accuracy of the Universal Soil Loss Equation (USLE) application under conditions in Manitoba, Canada. The study discusses the applications, limitations, evaluations and modifications of USLE, and the materials and methods used for the research.

USLE

662 WAIN, A.S. 1983

ATHI RIVER SEDIMENT YIELDS AND THE SIGNIFICANCE FOR WATER RESOURCE DEVELOPMENT

4 figs., 3 tables, 6 refs.

Assesses the sediment yields of the Athi River sampled during 1980 - 1981 at Munyu and Mavindini and gives a survey of the hydrologic characteristics - area, rainfall, runoff, sediment load, of the Middle and Upper Athi River Basin.

Machakos District/Sedimentation/Rainfall characteristics/USLE

663 WAITHAKA, D.K. 1989

STRATEGY FOR IMPLEMENTATION OF SOIL AND WATER CONSERVATION PROJECT IN MUTOMO DIVISION, KITUI DISTRICT.

7 pp.

Paper addresses itself to the strategies that need to be followed to implement soil and water conservation in ASAL areas. It outlines the strategies followed in Mutomo Division in Kitui District to implement phase 1 of the programme. Analyses the contribution and links between the local population and the programme, and the incentive schemes used to ensure total participation of all parties. Argues that the programme has made a strong impact.

Kitui District/Mutomo/Management practices/Structural methods/Organization
WALSH, N.M. 1960

SOIL CONSERVATION PRACTICES ON NYANZA TEA ESTATES

Tea 2(1):36-39

Discusses the dangers of soil erosion during land clearing for tea plantations and gives general measures for soil and water conservation. Recommends the use of terraces, contour tea planting, contour mulching, cutoff drains depending on ground slope. Article also reviews road alignments, drainage channels, terrace construction, contour planting, trench planting, level terraces and terrace maintenance.

Deforestation/Management practices/Structural methods/Physical infrastructures/Constructions

WAMBIJI, H., MUSINTSI, J. 1986

SOIL MONOLITH COLLECTION AND PREPARATION

Egerton College Research Paper Series
22 pp., 2 tables, 12 refs., 5 appendices.

Study undertaken to act as a data bank on various soils of economic importance to Kenya. The samples covered in the study were collected from western part of the Great Rift Valley. Results revealed that hygroscopic moisture of samples in high rainfall areas increased with depth. There was not significant differences in phosphorus content of all samples.

Soil types

WAMICH, W.N., MAINGI, P.N., D’COSTA, V. 1986

SALINE AND SODIC SOILS OF KENYA


(not available for annotation)

Chemical properties/Salinization
667 WANGATI, J.E. 1981

SOIL AND WATER CONSERVATION IN AGROFORESTRY.

10 refs.

Discusses the effect of land clearing for cultivation on soil and water conservation - soil loss and runoff, on the Aberdares.

Deforestation/Agroforestry/USLE

668 Wanjama, A.M. 1978

SPECIFICATION, CONSTRUCTION AND USE OF THE METRIC LINE LEVEL

IDS Occasional Paper No. 27, pp. 40-43

Article describing the construction of the metric line level giving some examples on how it is used for setting and laying out of terraces.

Tools/Layout/Terraces

669 Wapakala, W.W. 1974

METHODS AND TECHNIQUES OF ASSESSING THE EXTENT OF THE ENVIRONMENTAL DAMAGE IN THE RURAL AREAS OF EAST AFRICA

KADOC No. 10375

13 pp., 22 refs.

Reviews factors involved in environmental damage with reference to soil erosion, deforestation, over grazing, irrigation, overpopulation, agricultural and industrial chemicals.

Environmental impact assessment/Deforestation/Overgrazing/Overpopulation
WAPAKALA, W.W. 1978

APPROPRIATE TECHNOLOGY FOR CONSERVATION OF SOIL FERTILITY.
KADOC No. 10380

8 pp., 20 refs.

Describes technology for conservation of soil fertility especially the use of fertilizers, soil conservation tillage, irrigation and population control.

Chemical treatment/Tillage

WAWERU, F.M. 1978

COMPARISON ON EVALUATION OF "FANYA JUU" TYPE OF TERRACE AND CHANNEL TYPE TERRACES IN KYANGULUMI SUB LOCATION MACHAKOS DISTRICT

Postgraduate Diploma Project Report, University of Nairobi, Department of Agricultural Engineering, Nairobi.
77 pp., 29 figs., 3 tables, 9 refs.

Comparative study of the "fanya juu" and the channel type terraces on the effectiveness of these terraces to conserve soil and water, construction and maintenance costs.

Machakos District/Kyangulumi/Terraces/Soil and water conservation

WAWERU, F.M. n.d

TAVETA PROJECT: SOIL AND WATER CONSERVATION PAPER.

Arid and Semi-Arid Land Development Branch.
23 pp., 5 figs., 3 tables, 8 refs.

Describes the area, topography, vegetation, climate, hydrology, irrigation, agriculture and land use. Discusses the general soil erosion problem and soil conservation measures and presents a soil and water conservation project proposal with organization, personnel, equipment, activities, justification for the project and estimate of cost for the construction of cutoff drains, gully control structures, tools, nursery establishment and dam construction included.

Taita-Taveta District/Soil and water conservation/Costs/Dams/Soil and land degradation
WEBSTER, C.C. n.d.

LAND UTILIZATION AND SOIL FERTILITY MAINTENANCE IN KENYA: A REVIEW OF RESEARCH IN PROGRESS.

7 pp., 3 refs.

Describes an ongoing research on ridging and mulching in the semi-arid areas of Kenya to improve soil moisture and crop yield.

Ridging/Mulching/Soil moisture/Soil productivity

WENNER, C.G. 1976

COURSE SEMINAR ON SOIL CONSERVATION IN SMALL SCALE FARMING IN HIGH POTENTIAL AREAS USING LABOUR INTENSIVE METHODS. SOIL CONSERVATION PROJECT, 1976/77.

KADOC No. 10702
Course-seminar on Soil Conservation, MOA, Land and Farm Management Division, Nairobi, 2-9 Sept., 1976
131 pp., tables, 2 maps, graphs, ill.

Describes the major topics covered during a course seminar on soil conservation in small scale farms in high potential areas. Covers status of soil erosion and plans for soil conservation, erosion processes and their control using cultural and physical methods especially cutoff drains. Discusses how technical assistants should approach farmers. Includes the Agricultural Act and outlines the soil conservation programme activities in 1976/77.

Soil and land degradation/Structural methods/Management practices/-/Extension/Policies

WENNER, C.G. 1979

AN OUTLINE OF SOIL CONSERVATION IN KENYA.
KADOC No. 40114

Ministry of Agriculture, Nairobi, Kenya.
56 pp., 24 figs., 5 tables, many ill.

Describes soil conservation measures with reference to terracing, cutoff drains, cost of cutoff drains and terraces, gully control, protection of river banks and artificial waterways, soil conservation on grazing lands, rehabilitation of desertified areas. Also contains aspects of soil conservation practices such as how to calculate the dimension of a cutoff drain, vertical and horizontal intervals and design of gully control.

Structural methods/Costs/Stabilisation/Reclamation/Layout
WENNER, C.G. 1980

SOIL CONSERVATION POCKET BOOK FOR TECHNICAL ASSISTANTS.
KADOC No. 40187

Ministry of Agriculture, Nairobi, Kenya.
27 pp., 15 figs., 14 tables.

A guide to soil conservation by terracing, and cutoff drains. Also gives instructions on how to calculate the dimensions of a cutoff drain, gully control and other methods of conserving soil.

Terraces/Cut-off drains/Gully control/Design

WENNER, C.G. 1980

SOIL CONSERVATION IN KENYA. ESPECIALLY IN SMALL-SCALE FARMING IN HIGH POTENTIAL AREAS USING LABOUR INTENSIVE METHODS.

191 pp., 9 pp. index, 28 pp. appendix, 81 refs. ill. and many tables

A handout for technical assistants containing eleven chapters and four appendices. Topics covered include: erosion processes and their preventive measures, prediction of soil loss and choice of conservation measure, conservation on cultivated and grazing lands, agroforestry, the Agricultural Act, soil conservation in farm planning, instructions to technical assistants, maps on soil conservation, instruments, and finally literature on soil conservation.

Prediction/Soil and land degradation/Soil and water conservation/Policies

WENNER, C.G. 1980

TREES IN EROSION AND SOIL CONSERVATION.

23 figs., 1 table, 7 refs.

Discusses the role of trees in terracing to prevent erosion and in reclamation of denuded lands. Lists five tree species which are highly suited to land reclamation (with growth characteristics, and resource requirements of each) and a list of 20 other tree species is included.

Vegetation cover/Reclamation/Terraces/Agroforestry
WENNER, C.G. 1983

SOIL CONSERVATION IN KENYA

Ambio 12(6):305-307
3 pp., 4 figs., 1 plate.

An interview, on soil conservation activities in Kenya, the role of low income farmers, the Keya model, organization and staff, difficulties in soil conservation, overgrazing problem, afforestation and the need for research.

Soil and water conservation/Overgrazing/Revegetation

WENNER, C.G. 1984

GULLY EROSION AND GULLY CONTROL IN KENYA

115 pp., 30 figs., 3 tables, 16 photos, 3 appendices.

Report contains an assessment of the damages to land through gully erosion. Describes the various methods of gully control and recommends the appropriate ones. Certain erosion features and control activities in Kiambu and Murang'a Districts are used for illustrations.

Kiambu District/Murang'a District/Gully erosion/Gully control

WENNER, C.G., NJOROGE, S.N.J. 1982

SOIL CONSERVATION

Ministry of Agriculture.
7 pp., 7 figs.

Deals briefly with land classification, conservation measures and gives specification on terrace length, gradient, terrace type, spacing, length of cutoff drains, width and depth of waterways, methods of gully control, cost of terraces and cutoff drains and government policy for subsidies.

Land use/Structural methods/Layout/Costs/GoK
WERNER, V.W. 1983

INTEGRATED FILTER SYSTEM FOR RESERVOIRS OF SMALL EARTH DAMS


11 pp., 2 figs., 5 tables

Describes the use, advantage and cost of perforated PVC pipes buried in the permeable strata of small earth dams to filter water for safe public use in the arid and semi-arid areas as tested at Waiya Earth Dam, Machakos District.

Machakos District/Waiya/Dams

WILLCOCKS, T.J. 1974

THE AGRICULTURAL ENGINEERING ASPECT OF SOIL CONSERVATION SERVICE, KENYA

KADOC No. 10704

72 pp., 53 tables, 4 refs., 2 ills., 9 photos.

Gives statistical data on utilization of tractors in soil conservation service and on staff organization. Discusses the maintenance and repair facilities and operational costing, giving recommendations.

Soil and water conservation/Costs/Maintenance/Organization

WILLIAMS, W.A. 1970

TECHNIQUES FOR CLASSIFYING SOILS IN RELATION TO THEIR USE AS EMBANKMENT MATERIALS, ACCORDING TO THEIR ERODIBILITY POTENTIAL, WITH PARTICULAR REFERENCE TO SOILS OF KENYA.

MSc. Thesis, Silsoe College, Cranfield Institute of Technology

Study argues that there is a close relationship between compaction and erosion, and that erosion is a function of compaction and slope. Using different soils compacted in trays in a laboratory the author designs a penetrometer to measure the density of the soils and uses the results to develop a technique to classify soils as embankment materials in terms of their erodibility potentials.

Soil types/Compaction/Soil erodibility
YEGO, J.K. 1982

THE SUITABILITY OF LANDSAT DATA TO MAP AND MONITOR SOIL EROSION HAZARDS IN SEMI-ARID LANDS: A CASE STUDY OF KITUI DISTRICT, KENYA

M.A. Thesis, University of California, Santa Barbara. 162 pp., 16 figs., 6 tables, 39 plates, 140 refs.

Thesis on the use of landsat data to map and monitor erosion hazards, determine spatial location, extent and severity of the hazards on a study site in Kitui District in 1979. Also gives two date change analysis (1973-1979) to detect spatial changes of erosion hazard

Kitui District/Aerial photo analysis/Soil erodibility

YOUNG, A. 1986

THE POTENTIAL OF AGROFORESTRY FOR SOIL CONSERVATION PART 1 EROSION CONTROL

ICRAF Working Paper No. 42 68 pp., 2 figs. 3 tables, 149 refs.

This paper covers agroforestry in erosion control. Trends in soil conservation research and policy are reviewed, and assessed with respect to their significance to agroforestry. Attention is given to predictive models, the importance of soil cover, land evaluation, effects of erosion and land productivity, and economic and policy aspects.

Agroforestry/Soil and water conservation/Land use/Economic considerations/Modelling

YOUNG, A. 1987

THE POTENTIAL OF AGROFORESTRY FOR SOIL CONSERVATION PART 2 MAINTENANCE OF FERTILITY


This paper discusses agroforestry in the maintenance of fertility. Relations between fertility, soil degradation and sustainability are discussed. Processes by which the trees improve soils are considered, including the cycling of organic matter, nitrogen and other nutrients, other soil properties, and the role of roots. Tree and shrub species with a soil improving potential are identified. Evidence for soil changes under agroforestry practices are summarised.

Agroforestry/Soil and water conservation/Chemical properties/Physical properties
THE POTENTIAL OF AGROFORESTRY FOR SOIL CONSERVATION - WITH SPECIAL REFERENCE TO VERTISOLS


Paper argues that the principal adverse effect of erosion is reduction in fertility through loss of soil organic matter and nutrients. Looks at the specific problems of vertisols. Maintains that six agroforestry practices can be effective in control of erosion, and eight in maintenance of fertility.

Agroforestry/Soil and water conservation/Nutrient loss/Vertisols

THE POTENTIAL OF AGROFORESTRY FOR SOIL CONSERVATION AND SUSTAINABLE LAND USE

ICRAF Reprint No. 39
16 pp., 1 table, 30 refs.

Paper reviews recent trends in research related to soil conservation, and their implications, and also outlines the potential of agroforestry in soil conservation.

Agroforestry/Soil and water conservation

THE POTENTIAL OF AGROFORESTRY FOR SOIL CONSERVATION PART 3
SOIL CHANGES UNDER AGROFORESTRY: A PREDICTIVE MODEL

ICRAF Working Paper No. 44
90 pp., 13 figs., 10 tables, 35 refs.

The paper describes the objectives, structure and functioning of a computerised model for prediction of soil changes under specified agroforestry systems within given environments. It provides estimates of changes in soil organic matter, represented by carbon, and soil erosion, together with the response of plant growth and harvest to soil changes.

Agroforestry/Modelling/Chemical properties/Physical properties
ZECHMER, D. 1981

REPORT ON RUNOFF HARVESTING IN BPSAAP AREA.
Commissioned by World Bank.
(not available for annotation)
Baringo District/Water harvesting

ZOBSCH, M.A. 1980

CONCISE SOIL AND WATER CONSERVATION PLAN FOR MAKULANI EARTH DAM CATCHMENT
Machakos Integrated Development Programme.
3 pp., 3 figs.
Gives estimates of the area under different land use and summary of soil conservation measures - terrace improvement, cutoff drains, pasture reclamation, afforestation, tree planting on farms, gully control, road improvement, water harvesting. Lists provision of services by Machakos Integrated Development Programme.
Machakos District/Makulani/Land use/Structural methods/Reclamation

ZOBSCH, M.A. 1983

PRACTICAL FARMERS TRAINING IN CONSERVATION
A short outline on the Machakos Integrated Development Programme farmers training activities. It covers training units, selection of training units, selection of farmers, principles of course implementation, post-course considerations, instructors qualifications, visual aids and farmers after the trial courses.
Training
THE CONCEPT OF A "MINIMUM SOIL DEPTH" AS A BASIS FOR REGIONAL SOIL CONSERVATION PLANNING

DAE, SIDA
2 tables, 5 refs.

Paper reports the findings of an experiment carried out in sixteen sites in rainfed areas of central Machakos to develop the concept of a "minimum soil depth" as a basis for regional soil conservation planning. Makes the assumptions that the minimum soil depth should be large enough to hold the maximum expected monthly rainfall less the corresponding evaporation for that month, and only soil in excess of the minimum soil depth should be allowed to erode.

Machakos District/Soil depth/Local/Soil loss tolerance
THE HIERARCHICAL SYSTEM FOR INDEXING SOIL AND WATER CONSERVATION LITERATURE

by Dr. R.H.G. Bos

The framework for key words and indexing is based mainly on the subject matters that are covered in this bibliography (see preface).

As far as possible the key word entries have been arranged in a logical structure. The framework consists of three main groups that cover respectively:

- processes of soil and land degradation
- the factors and characteristics that determine erosion processes, and
- all actions and subjects related to the conservation of soil and water.

These main groups are preceded by a general group that permits making index entries to those aspects not directly related to the physical processes in a narrow sense, and they are followed by a miscellaneous group. Each group has been subdivided into subgroups, and most sub-groups into lower level entries.

Because of the context of the framework, most entries are self explanatory, although they have been kept as brief as possible. In some cases some additional information concerning the range of entry seemed important; this has been added in italics. However, italic text has not been used for the index entries given in the bibliography.

The framework is an hierarchical one. It implies that all sub or lower level entries are part of the entry at the higher level. For example: the index entry "structural methods" implies, in principle, that the literature discusses all types of physical measures (e.g. cut-off drains, terraces etcetera) that are relevant to "soil and water conservation" (being the highest level in the hierarchy). Or that the information provided by the title and the annotation made was inconclusive as to enable such differentiation.

Where possible, the lowest level has been used to make the references as precise as possible. In case a higher level plus a reference to a lower level of the same group (e.g.../management practices/tillage/...) shows, it means that several of the subsequently specified management practices are discussed, but the emphasis is with 'tillage'. If .../management practices/... had not been used as an entry and just .../tillage/..., the implication would have been that the literature exclusively treated "tillage" as a management practice in 'soil and water conservation'.

The framework is as follows:
General soil erosion
prediction
modelling
rainfall simulation
run-off plots
(U)SLE (inc. USLE factors and gen. models)

survey
aerial photo analyses (incl. landsat, general remote sensing)
land use
maps
measurements

Soil and land degradation (processes and types)

biological
imbalance of micro biological activity

causes
deforestation
overgrazing
overintensive annual cropping
overpopulation
physical infrastructure

chemical degradation
nutrient loss
salinization
waterlogging (grey)

impacts
flooding
land degradation (incl. desertification)
sedimentation
soil loss tolerance
soil productivity

physical degradation
compaction
dispersing action of salts
sealing of topsoil

water degradation
channel erosion (streambanks)
gully erosion
mass movements
rill erosion
sheet erosion
splash erosion

wind degradation
loss of topsoil
terrain deformation

Erosion factors

chemical properties
- base saturation
- nitrogen content

physical properties
- aggregates
- infiltration
- sealing and crusting
- soil depth
- soil moisture
- soil structure
- soil temperature
- texture
- vegetation cover

physiographical parameters
- exposure
- slope angle
- slope length

rainfall characteristics (and rainfall erosivity)
- rainfall distribution (including seasonality)
- rainfall duration
- rainfall frequency
- rainfall intensity
- rainfall kinetic energy

soil erodibility

Soil and water conservation

agroforestry (incl. forestry)
- forest management
- multi-purpose trees
- nursery

management practices
- alley cropping
- chemical treatment
- contouring
- crop cover
- grass strips
- mixed cropping
- mulching
- plant residues
- ridging
- rotation
- strip cropping
tillage
drainage

policies (including regulations and planning)
  GoK
  local
  management
  NGO's

socio-economic aspects
  economic considerations
  education
  environmental impact assessment
  evaluation
  extension
  Farming system research
  organization (women groups, self help groups, local participation etc)
  training

structural methods
  cut-off drains
  dams
  gully control
  retention ditches
  terraces
  waterways

structures
  construction
  costs
  design
  failures
  installations
  lay out
  maintenance
  stabilization
  tools

water harvesting (incl. water conservation and management)
  macro catchments
  micro catchments
  spate irrigation

Miscellaneous

reclamation
  closure
  reseeding
  revegetation
  wells
soil development (renewal)

soil types
andosol
ferrallitic soils
gley soils
luvisol
nitosol
vertisol

Of course this framework is not complete. Especially at the lower level, future additions (when new literature will be added) can probably be expected. It also clear that not all entries given will carry the same quantity of references; some even have (for the time being) zero references. The entries with zero references have not been left out since it might provide an indication of subjects/topics for which research data is scarce or even lacking, in comparison to well-covered areas.
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