

付属資料 2. 質問書 (英文)

**Sokoine University of Agriculture for Sustainable Rural Development
questionnaire**

1.National development plan/policy

- (1)What is the position of university education in RPFB (Rolling Plan & Forward Budget : 1996/97~1998/99)?
- (2)What does the Long Term Development Perspective (Development Vision) describe the university education development?
- (3)What is the position of the community development in RPFB and Development Vision?
- (4) What strategies in the Long Term Perspective have been mentioned on rural community development?
- (5)Is there any approach for participatory development described in either Development Vision or RPFB? If yes, please indicate clearly.
- (6)Please present the organization system(chart with specific terms of references of principal offices/officers) of ;
Ministry of Science, Technology and Higher Education,
Ministry of Agriculture and Cooperatives,
Sokoine University of Agriculture.

2.Administration for rural development

- (1)What is the position of district administration in the central administration system?
- (2)Please provide the following information on rural community development in relation to the District Administration.
 - a. Roles of District Development Directorate (DDD)
 - b. Roles of community development facilitator (if it exists)
 - c. Any relevant information for planning, implementation and operation of rural community participatory development project
- (3)How far has the decentralization of administration to the District level been implemented in terms of personnel management, financial management and policy making?

3.Implementators of rural community development

- (1)Currently, who are the actual implementators of rural community development?
- (2)Is there any institution or division to train rural community development facilitators?
- (3)Which Ministry and section of the Ministry are taking responsibility of the training of facilitators?
- (4)Concerning the training of the facilitators, please provide the following information:
 - a. Objectives of training
 - b.Level and qualification awarded for the training
 - c.Training courses and curriculum
 - d.Funding agency
 - e.Financial management

- f. budget allocation for each Ministry taking responsibility for training facilitators
- f. Number of community development facilitators in Regions and Districts in the country, particularly in Mbinga and Morogoro districts)

4. University education

- (1) Please draw current picture of university education.
- (2) Please describe the function of 3 national universities (University of Dar es Salaam, Sokoine University of Agriculture, Muhimbili Medical College)
- (3) How are 3 national universities related to the rural community development?

5. Proposed/Planned Sokoine University of Agriculture centre for Sustainable Rural Development

- (1) What position will the centre take in Sokoine University of Agriculture?
- (2) What kind of function will the centre have?
- (3) What procedure will be required to establish the centre?
- (4) What is the possibility of the finance regarding to establishment of the centre?
- (5) Which procedure will be required in order to ensure the budget?
- (6) Please present the plan of arrangements of the staff, facilities, equipments for the centre.

6. Donor, International organization, NGO

- (1) Please describe the trend and activities of the donors, international organizations, and NGOs in Tanzania.
- (2) Please indicate on-going rural community development projects assisted by donors with brief profile, if you have.
- (3) Please list any on-going cooperation projects for SUA assisted by donors with brief profile, if you have.
- (4) Please indicate any problems or difficulties you have ever experienced in implementing the cooperation programmes and projects by the donors, international organizations, and NGOs.
- (3) Are there any difficulties for SUA to collaborate with NGOs?

Please provide the following documents to the survey team

- 1. Development Strategies on;
 - a. Community Services
 - b. Agriculture
 - c. Health
 - d. Education
 - e. Poverty
 - f. Environment
 - g. Women in Development
- 2. University education strategies for Ministry of Science, Technology, and Higher Education.
- 3. Latest issue of Statistical Abstract
- 4. Current Calendar of Sokoine University of Agriculture
- 5. Staff List and Student Population of SUA
- 6. Any Acts/Laws governing rural community development activities

付属資料3. 質問書（日本語訳）

タンザニア国ソコイネ農業大学地域開発センター
質問書

1. 国家開発計画／政策について

- (1) 国家開発計画（RPFB：1996/97～1998/99）における大学教育政策の位置づけ
- (2) 長期開発展望は大学教育開発にどのように言及しているか
- (3) RPFBおよび長期開発展望における地域開発の位置づけ
- (4) 長期開発展望における地域開発戦略はどのようなものか
- (5) RPFBまたは長期開発展望において参加型開発アプローチに言及しているか
- (6) 以下の組織体系（業務内容を明記した組織図）
 - ・ 科学技術高等教育省
 - ・ 農業省
 - ・ ソコイネ農業大学

2. 地域開発行政について

- (1) 中央行政制度における地方行政はどのような位置づけになっているか
- (2) 地方行政における地域開発について
 - ・ District Development Directorateの役割
 - ・ 地域開発普及員の役割
 - ・ 参加型農村地域開発プロジェクトにかかる計画、実施、運営に関する関連情報
- (3) 人事、財政、政策決定における地方分権の確立状況

3. 地域開発実践者

- (1) 現在、誰が地域開発を実践しているのか
- (2) 地域開発普及員を養成している機関はあるか
- (3) 地域開発普及員の養成を担当している政府機関（局／課）
- (4) 普及員養成に関して
 - ・ 訓練目的
 - ・ 訓練レベルと取得可能な資格
 - ・ 訓練コースとカリキュラム
 - ・ 支援（資金面）機関

- ・財政管理
- ・普及員訓練を担当しているそれぞれの政府機関に割り当てられた予算の比率
- ・ムビンガ県、モロゴロ地方県における普及員の数

4. 大学教育について

- (1) 大学教育制度の概要について
- (2) 3国立大学（ダルエスサラーム大学、ソコイネ農業大学、ムヒンビリ保健医学大学）の機能
- (3) 上記国立大学の農村地域開発との関連

5. 地域開発センター

- (1) ソコイネ農業大学における地域開発センターの位置づけ、機能、およびセンター組織確立のための公式手続き
- (2) 予算確保の見通し、方法
- (3) スタッフ配置計画
- (4) 施設・設備拡充計画

6. 各国ドナー、国際機関、NGO

- (1) 地域開発および大学教育の分野での動向、協力状況
- (2) 現在実施中の地域開発プロジェクトの概要（あれば）
- (3) 過去における協力プログラムやプロジェクト実施上の問題点
- (4) NGO（国際、現地）との連携上の問題点

<本調査団に提供していただきたい文書>

(1) 開発戦略

- ・コミュニティーサービス
- ・農業
- ・保健
- ・教育
- ・貧困
- ・環境
- ・WID

(2) 科学技術高等教育省の大学教育戦略

- (3) 最新版統計資料
- (4) ソコイネ農業大学の年間スケジュール
- (5) ソコイネ農業大学のスタッフ/学生リスト (人数)
- (6) 地域開発活動に関する政令等

SOKOINE UNIVERSITY OF AGRICULTURE

THE UNITED REPUBLIC OF TANZANIA

Act No. 6 of 1984

I ASSENT,
J.K. NYERERE
President
21st May, 1984

An act to establish the *University of Agriculture Morogoro* and to provide for matters connected with and incidental to the establishment and functioning of that University.

ENACTED by the Parliament of the United Republic of Tanzania.

PART I
PRELIMINARY

1. This Act may be cited as the *University of Agriculture Act, 1984*.

2. This Act shall come into operation on the first day of July, 1984.

3. In this Act, unless the context requires otherwise:-

"academic staff" means members of the staff of the University described in section 25,

"academic staff association" means the association of academic staff established by section 34,

"administrative staff" means members of the staff of the University described in section 28,

"annual estimates" means the estimates, other than supplementary estimates, prepared under section 57 in respect of any financial year,

"appointing authority" in relation to a person holding any office created by or under this Act, means the person or body of persons vested with the power to appoint or elect that person to the office concerned.

"appointment" in relation to the staff of the University means an appointment of a person to the academic or administrative staff of the University and includes an appointment or promotion or transfer, and also includes an acting appointment, "Appointment Committee" means, in relation to an appointment to the academic staff or any matter relating to a member of the academic staff the Committee established by section 20, and in relation to an appointment to the administrative staff or any matter relating to a member of the administrative staff, the Committee established by section 21,

"Board" means a Board or Committee established under and in accordance with section 19, and includes an Appointment Committee, a Faculty Board, the Disciplinary Appeals Committee established by section 43,

"the Chairman" means the Chairman of the council,

"The Chancellor" means the Chancellor of the University referred to in section 9,

"constituent college" means a college or institution established or to be a constituent college of the University under section 47,

"the Convocation" means the Convocation of the University established by section 48,

"the Council" means the Council of the University established by section 13,

"Dean" means the Dean of a Faculty,

"Deputy Vice-Chancellor" means the Deputy Vice-Chancellor appointed under section 11,

"Director" means the director of an Institute,

"Disciplinary Appeals Committee" means the Committee established by section 43,

"Faculty" means a Faculty of the University established by or under section 18,

"Faculty Board" means a Faculty Board established in accordance with section 19,

"financial year" means the financial year of the University as determined under section 56,

of the Council authorized in that behalf by the Council, and that of the Registrar.

- (3) The official seal of the University shall, when affixed to any document and duly authenticated under this section, be judicially and Officially noticed and, unless the contrary is proved, any necessary order or authorization of the Council under this section shall be presumed to have been duly given.

6. OBJECTS AND FUNCTIONS OF THE UNIVERSITY
The objects and functions of the University shall be:-

- (a) to provide facilities for university education in the fields of or connected with agricultural sciences, including technological and or through the medium of connected schools or institutes,
- (b) to assist in the preservation, transmission, dissemination and enhancement of knowledge in the fields of agriculture, fisheries, forestry, veterinary and allied or complementary sciences,
- (c) to create a sense of public responsibility for rural development among the educated, and to promote respect for learning and pursuit of truth,
- (d) to prepare students to work with the workers and peasants of Tanzania in the agricultural, wildlife, livestock and allied sectors for purposes of the better development and strengthening of the national economy,
- (e) to assume responsibility within the United Republic for higher level education in agriculture, fisheries, forestry, veterinary and allied or complementary sciences, and for that purpose to make provision for places and centres of learning, education, training and research,
- (f) to conduct examinations for, and to grant, degrees, diplomas, certificates and other awards of the University,
- (g) to initiate and conduct basic and applied research in the fields of land use, crop and livestock production, fisheries, natural resources and allied sciences, mechanical arts and technology, and to promote the integration of the research with training and agricultural extension services,
- (h) to develop, promote and undertake the provision of adult and continuing education alongside the teaching of regularly enrolled students designed to secure the development and

"Institute" means an Institute established by or under this Act, "member" in relation to:

- (a) the Council, means a member of the Council and includes the Chairman,
 - (b) a Board, means a member of the Board and includes the Chairman, of the Board,
 - (c) the Senate, means member of the Senate and includes the Chairman of the Senate,
 - (d) the Convocation, means a member of the Convocation and includes the President of the Convocation,
- "Minister" means the Minister for the time being responsible for matters relating to education.

"officer" means any person in the employment of the University but does not include the Vice-Chancellor, the Deputy Vice-Chancellor or the Registrar,

"Registrar" means the Registrar of the University appointed under section 12,

"Vice-Chancellor" means the Vice-Chancellor of the University appointed under section 10.

PART II
THE UNIVERSITY OF AGRICULTURE

4. There is hereby established a University to be known as the University of Agriculture Morogoro.

- (1) The University shall be a body corporate and shall:-
 - (a) have perpetual succession and an official seal,
 - (b) in its corporate name, be capable of suing or being sued,
 - (c) be capable of purchasing and acquiring in any other way, and of alienating any movable or immovable property,
 - (d) have power from time to time to borrow such sums as it may require for its purposes.

5. **OFFICIAL SEAL AND SIGNIFICATION OF DOCUMENT**
The official seal of the University shall be kept in such custody as the Council directs and shall not be used except in accordance with an order or direction of the Council.

- (2) The official seal of the University shall be authenticated by the signature of the Vice-Chancellor, or of one other member

dissemination of various applied sciences and technologies required for the enhancement of the rural economy and the efficacious solution of the economic and social problems of rural areas of the United Republic.

- (i) to develop and maintain a reference library and provide library service in agricultural sciences and related disciplines for the benefit of the University community and the people of Tanzania generally.
- (j) to cooperate with national and international institutions in the initiation and conduct of co-operative research and training programmes for the mutual benefit of the cooperating institutions and the United Republic.
- (k) to cooperate with the Government of the United Republic, the Revolutionary Government of Zanzibar, the people of Tanzania and any person or body of persons within or outside the United Republic to secure the planned and orderly development and application of agricultural and allied sciences, and for the better performance of the function of the University.

PART III

AWARD OF DEGREES, DIPLOMAS, ETC.

- 7. (1) Subject to the provisions of this Act, the University may confer the degrees of Bachelor, Master, Doctor and such other degrees as may be prescribed.
- (2) The University may grant diplomas, certificates or other awards:-
 - a) to persons in respect of courses of study provided by the University and approved by senate, or
 - (b) to persons who, in the Opinion of the senate, are entitled to receive such diplomas, certificates or other awards.

8. Section 7 shall apply to the degree of Doctor honoris causa which the senate may, with the approval of the Chancellor, wish to confer upon any person who, in the opinion of the Senate, has rendered distinguished service in the advancement of any branch of learning or has otherwise rendered himself worthy such a degree.

PART IV THE ADMINISTRATION OF THE UNIVERSITY

(a) The leadership of the University

THE CHANCELLOR

- 9. (1) The President of the United Republic shall unless he sees fit to appoint some other person to the office of chancellor, be the chancellor of the University.
 - (2) A Person who is appointed by the President shall hold office for such period and upon such terms and conditions as may be specified in the instrument of his appointment subject to subsection (1)
 - (3) The Chancellor shall-
 - (a) be the Head of the University and shall, in the name of the University, confer all degrees, diplomas, certificates and other awards for the University,
 - (b) have the right, from time to time, to direct an inspection of the University or an inquiry into the teaching, research or any other work of the University.
 - (c) have power to arrange for visitation to the University in such manner as may be appropriate or prescribed,
 - (d) provide such advice and guidance to the Council as he may consider necessary or desirable for the betterment of the University.
 - (4) The Chancellor shall have such other Functions as are conferred upon him by this Act.
 - (5) Whenever the Chancellor is absent from the United Republic or is for any other reason unable to perform the functions of his office, the President or any person authorized by him in that behalf may appoint a person to perform the functions of the office of Chancellor during such absence inability.
- THE VICE CHANCELLOR
- 10. (1) There shall be a Vice-Chancellor of the University, who shall be appointed by the President after consultation with the Council, save that it shall not be necessary for the President to consult the Council for the purposes of the appointment of the Vice-Chancellor to be first appointed immediately after the commencement of this Act.
 - (2) The Vice-Chancellor shall hold office for such period as the President may determine and upon such terms and conditions as shall be specified in the instrument of his appointment.

- (3) The Vice-Chancellor shall be the principal executive officer of the University and shall be responsible to the Council for the implementation of the decisions of the Council.
- (4) The Vice-Chancellor shall have such other functions as are conferred upon him by this Act or as may be prescribed.

11. THE DEPUTY VICE CHANCELLOR
There shall be a Deputy Vice-Chancellor of the University who shall be appointed by the President, after consultation with the Vice-Chancellor from amongst the professors of the University.

- (2) The Deputy Vice-Chancellor shall hold office for such period as the President may determine and upon such terms and conditions as shall be specified in the instrument of his appointment.
- (3) The Deputy Vice-Chancellor shall be the principle assistant and responsible to the Vice-Chancellor in all matters pertaining to the academic activities and life of the University.

- (4) The Deputy Vice-Chancellor shall have such other functions as are conferred upon him by this Act or as may be prescribed.

12. THE REGISTRAR
There shall be a Registrar of the University who shall be appointed by the President, after consultation with the Vice-Chancellor, and shall be a person who, in the opinion of the President has proven administrative experience and is otherwise able to act effectively in the office.

- (2) The Registrar shall hold office for such period as the President may determine and upon such terms and conditions as shall be specified in the instrument of his appointment.
- (3) The Registrar shall be the principal assistant and responsible to the Vice-Chancellor in all matters pertaining to the administration of the University, including the administration of the funds and other assets of the University.
- (4) The Registrar shall be the Secretary to the Council and the Senate.
- (5) The Registrar shall have such other functions as are conferred upon him this Act or as may be prescribed.

(b) The Council

THE UNIVERSITY COUNCIL

13. (1) There shall be a council of the University which shall consist of:-
- (a) The Chairman who shall be appointed by the President,
 - (b) The Vice-Chancellor and the Deputy Vice-Chancellor who shall be members ex-officio.
 - (c) seven members who shall be appointed by the Chancellor, two of whom after consultation with the Vice-Chancellor,
 - (d) three members who shall be appointed by the Minister,
 - (e) three members who shall be appointed by the Revolutionary Government of Zanzibar,
 - (f) one member who shall be appointed by the Minister for the time being responsible for livestock development,
 - (g) one member who shall be appointed by the Minister for the time being responsible for natural resources,
 - (h) one member who shall be appointed by the Minister for the time being responsible for finance,
 - (i) one member who shall be appointed by the Minister for the time being responsible for economic planning,
 - (j) one member who shall be appointed by the Minister for the time being responsible for manpower development,
 - (k) two members who shall be appointed by the Minister for the time being responsible for agriculture,
 - (l) one member who shall be appointed by the Executive Council of Jumuiya ya Wafanyakazi Tanzania (JUWATA)
 - (m) two members who shall be appointed by the Apex organisation of Co-operative Unions in Tanzania,
 - (n) three members who shall be elected by the National Assembly from amongst the members of the National Assembly,
 - (o) ten members who shall be elected by the Senate, six of whom shall be elected from amongst the academic staff of the University,
 - (p) one member who shall be elected by the Convocation,
 - (q) five members who shall be elected by the Students' Organization from amongst its members.
- (2) The provisions of the First Schedule to this Act shall have effect as to the tenure of office of the members of the Council, termination of their appointment, the proceedings of the Council and other matters in relation to the Council and its members provided for in that Schedule.

(3) Where members of the Council are appointed, the appointing authority shall appoint persons who are qualified or who have prerequisite experience enabling them to fully and usefully contribute to the discharge of the functions of the Council.

14. (1) **POWERS AND DUTIES OF THE COUNCIL**
Subject to this Act and without prejudice to any legislation, trust, deed or other instrument, statutory or otherwise, by or under which constituent college is established, the Government, control and administration of the University is hereby vested in the Council.

(2) In particular and without prejudice to the generality of subsection (1), the Council shall have power—

- (a) to administer the property and funds of the University, both movable and immovable, other than the property and funds of a constituent college in such manner and for such purposes as, in the opinion of the Council, may be necessary or desirable for the promotion of the best interests of the University subject to subsection (3).
- (b) to signify the acts of the University by use of the Official seal.
- (c) to receive on behalf of the University or a constituent college, gifts, donations, bequests or other moneys and property, and to make disbursements from them to the Faculties, institutes, constituent colleges or to other persons or bodies of persons.
- (d) to provide for the welfare of the students and the staff of the University.
- (e) to enter into any association or co-operation with any other University or institution of learning within or outside Tanzania as the Council may deem necessary or appropriate.
- (f) subject to this Act, to appoint such officers of the University as it may deem necessary.
- (g) subject to this Act, to make by-laws relating to the government, conduct and discipline of the students and the staff of the University.
- (h) to do all such other acts and things as are provided for by this Act as may be prescribed.

(3) All documents, other than those required by law to be under seal, made on behalf of the Council, and all decisions of the Council, may be signified under the hand of the Vice-Chancellor, the Registrar or of any other member of the Council generally or specially authorized by the Council in that behalf.

(4) The Council may appoint such numbers of officers to assist the Registrar in his capacity as Secretary to the Council as it may consider necessary.

15. **IRREGULARITY NOT TO AFFECT VALIDITY OF PROCEEDINGS**
No. act or proceeding of the Council shall be invalid by reason only of the number of the members not being complete at the time of that act or proceeding or of any member of the Council was at the time in question disqualified or disentitled to act as such.

(c) The Senate

16. (1) There is hereby established a Senate of the University which shall consist of—

THE SENATE

- (a) the Vice-Chancellor, who shall be the chairman of the Senate,
- (b) the Deputy Vice-Chancellor, who shall be the vice-chairman of the Senate,
- (c) the Registrar,
- (d) the Dean of Students,
- (e) the Head of each constituent college,
- (f) the Deans of the Faculties of the University,
- (g) two members appointed by the Chairman from amongst the members of the Council,
- (h) the Directors of Institutes.
- (i) one associate Dean from each Faculty of the University,
- (j) one associate Director from each institute of the University
- (k) six members appointed by the Vice-Chancellor, three of whom shall be appointed from amongst the members of the Council,
- (l) the Heads of the departments of the Faculties.
- (m) ten members elected by the professors of the University from amongst themselves,
- (n) two members elected by the Academic Board or equivalent body, if any, of each constituent college from amongst the members of that Board or body,
- (o) the Commissioner for National Education,
- (p) one representative of each of the Faculty Boards appointed by each Board from amongst its members who

- are not members of the Senate by virtue of any other provision of this sub-section, the Chief Co-ordinator of the University Teaching and Learning Improvement Programme, four members elected by the Students' Organization from amongst its member, three members elected by the academic staff association from amongst its members

(2) The provisions of the First Schedule to this Act shall apply mutatis mutandis in relation to the tenure of office of members of the Senate, termination of their appointment, proceedings of the Senate and other matters in relation to the Senate as they apply to the Council.

17. (1) The Senate shall be responsible to the Council for the control and general regulation of the instruction, education and research within the University and shall, in addition have the following functions-

- (a) to satisfy itself regarding the content and academic standard of any course of study offered by any Faculty, Institute or constituent college of the University in respect of any degree, diploma, certificate or other award of the University and to report its findings on those matters to the Council, to formulate and recommend to the Council by-laws-
- (i) regarding the eligibility of persons for admission to any course of study for a degree, diploma, certificate or other award of the University, and for the obtaining of any degree, diploma, certificate or other award of the University, regarding the standard of proficiency to be gained replace with "in each" examination for a degree, diploma, certificate or other award of the University,
- (c) to decide whether any candidate for a degree, diploma, certificate or other award of the University has attained the standard prescribed by-laws made in pursuance of recommendations made under paragraph (b) and is otherwise fit and proper person for the grant of the degree, diploma, certificate or other award of the University,
- (d) to initiate and make proposals to the Council relating to the conduct of the University and generally, and to discuss any matter relating to the University and to make representations on it to the council.

- (e) to consider recommendations made to it by a Faculty Board and to take such action on it as it may consider appropriate,
- (f) to make rules governing such other matters as are within its powers in accordance with the provisions of this Act.
- (g) to perform such other function as may be conferred upon it by the Council by regulations made under this Act.

(2) Notwithstanding any other provision of this Act, in respect of any matter in relation to which the Senate is required to report or make recommendations to the Council, the Council shall not initiate any action in respect of that matter until a report or recommendation on it has been received from the Senate, and shall not reject any such report or recommendation without further reference to the Senate.

(d) Faculties, Department and Institutes

18. (1) There are hereby established the following Faculties of the University-

- (a) the Faculty of Agriculture,
(b) the Faculty of Forestry,
(c) the Faculty of Veterinary Medicine.

(2) The Faculty Board of a Faculty may, with the approval of the Senate, establish such number of departments within the Faculty as the Board may consider necessary.

(3) The Council may, from time to time, after consultation with the Senate and with the approval of the Chancellor, by order published in the Gazette establish Faculties and Institutes either in addition to or in substitution for, the faculties and Institutes established by or under this section, and may disestablish any Faculty or Institute.

(4) The course of study to be conducted in any Faculty, Institute or Department shall be determined by the Senate.

(e) Boards and Committees

19. (1) There is hereby established in respect of each Faculty a Faculty Board.

(2) Every Faculty Board shall consist of-

FACULTY BOARDS

- (b) two members elected by the Senate from amongst its members.
- (2) Where the Appointment Committee meets to make or approve any appointment, in addition to its members, the following persons shall be entitled to sit on the committee as temporary members:-
- where the appointment is to be made for a Department of a Faculty, the head of that Department, and
 - two members appointed by the Vice-Chancellor who, in his opinion are adequately or qualified experienced in academic matters to assist in making a suitable appointment.
- (3) The Appointment Committee shall have such functions as may be conferred upon it by or under this Act or as may be delegated to it by the Council.
- (4) The provisions of the First Schedule to this Act shall apply mutatis mutandis in relation to the tenure of office of the members, their retirement, the termination of the appointment, the proceedings of the Appointment Committee and other matters in relation to it as they apply in relation to the Council.

21. APPOINTMENTS COMMITTEE FOR ADMINISTRATIVE STAFF

- There is hereby established an Appointment Committee for the Administrative Staff which shall consist of-
- the Vice-Chancellor, who shall be the Chairman,
 - the Registrar, who shall be the Vice-Chairman,
 - the Deputy Vice-Chancellor,
 - two members appointed by the Vice-Chancellor,
 - two members appointed by the Chairman of the Council from amongst the members of the council.
- (2) The Appointment Committee shall have such functions as may be conferred upon it by or under this Act or as may be delegated to it by the Council.
- (3) The provisions of the First Schedule to this Act shall apply mutatis mutandis in relation to the tenure of office of the members, their retirement, the termination of their appointment, its proceedings and other matters in relation to the Appointment Committee as they apply to the Council.

- (a) the Dean of the Faculty, who shall be the Chairman of the Board.
- (b) not more than fifteen members appointed by the Deputy Vice-Chancellor from amongst the academic staff assigned to the Faculty.
- (c) not more than three members appointed by the Senate from amongst the staff of research institutions outside the University.
- (d) five members elected to the Faculty Board by the students in the Faculty.
- (e) three members elected by the academic staff of the Faculty from amongst themselves.
- (3) Subject to any general or specific directions of the Senate, every Faculty Board may, from time to time-
- review and make recommendations to the Senate in respect of the control and regulation of the instruction, education and research within the Faculty,
 - make recommendations to the Senate on any matter pertaining to the Faculty,
 - do any other act or thing as it may be empowered to do by the Senate or by or under this Act,

(4) A Faculty Board:-

- may, subject to any direction of the Senate, meet at such intervals as it considers necessary,
- shall act in accordance with the directions of the Senate and shall report on the discharge of its functions and actions to the Senate in such manner and at such intervals as the Senate may direct,
- subject to the directions of the Senate, may regulate its own proceedings and fix a quorum for its meetings.

20. APPOINTMENTS COMMITTEE FOR ACADEMIC STAFF

- There is hereby established an Appointment Committee for the Academic Staff which shall consist of:-
- the Vice-Chancellor, who shall be the chairman,
 - the Deputy Vice-Chancellor, who shall be the Vice-chairman,
 - the Registrar,
 - one member appointed by the Minister,
 - one member appointed by the Vice-Chancellor,
 - the Deans of all the Faculties and all the Directors of all Institutes of the University,
 - two members appointed by the Chairman of the Council from amongst the members of the Council,

ACADEMIC STAFF

25. The academic staff of the University shall comprise of—

- (a) the Deputy Vice-Chancellor.
- (b) The Deans of Faculties.
- (c) The Directors of Institutes.
- (d) Professors in all disciplines.
- (e) Associate Professors in all disciplines.
- (f) Senior Lecturers, Senior Research Fellows and Senior Librarians.
- (g) Lecturers, Research Fellows and Librarians,
- (h) Assistant Lecturers, Assistant Research Fellows and Assistant Librarians.

26. (1) A Dean or a Director shall be appointed by the Council upon the recommendation of the Vice-Chancellor, in accordance with this section.

(2) Where a vacancy occurs in any office of Dean or Director, the Vice-Chancellor shall, after consultation with the Senate and having regard to the recommendations, if any, made by the Faculty Board, submit to the Council the names of not more than three or less than two persons who, in his opinion, are qualified and suitable for appointment to the office of Dean or, as the case may be, the office of Director, save that it shall not be necessary for the Vice-Chancellor to consult the Senate for the purposes of the appointment of the Deans and the Directors to the first appointed immediately after the commencement of this Act.

(3) Where names are submitted to the Council in accordance with the provisions of subsection (2), the Council shall proceed to elect a Dean or, as the case may be, a Director from amongst the persons whose names are submitted to it.

(4) Every Dean or Director appointed in accordance with this section shall, subject to this Act, hold office for a period of three years from the date of his appointment and shall be eligible for reappointment.

27. (1) The power of making appointments to all offices of academic staff other than the office of Deputy Vice-Chancellor, Dean and Directors is hereby vested in the Council.

(2) The Council may delegate its powers under subsection (1) in relation to any office to the Appointment Committee, subject to section 33.

22. (1) COUNCIL MAY ESTABLISH OTHER BOARDS AND COMMITTEES
The Council may from time to time, appoint such other Boards and Committees as it may consider necessary and, subject to the provisions of this Act and directions given by the Chancellor in that behalf, delegate to any such Board or Committee any of its functions under this Act.

(2) A Board or Committee appointed under this section shall be composed of such number of members as the Council may determine and appoint, save that at least one-third of the total number of members appointed to any such Board or Committee shall be appointed from amongst the members of the Council.

(3) The quorum necessary for the conduct of the business of any Board or Committee appointed under this section shall be fixed by the Council.

(4) Where the Council establishes a Board or Committee under this section the Council shall elect one of its members to be the chairman of the Board or, as the case may be, of the Committee.

(5) For the purposes of this section, the Registrar shall be deemed to be a member of the Council.

(c) The staff of the University

23. STAFF AND OFFICERS IN SERVICES OF THE UNIVERSITY
(1) The staff of the University shall comprise of the academic staff and administrative staff appointed to any office of any description in the service of the University.

(2) The power to constitute and to abolish offices in the service of the University are hereby vested in the Council, subject to subsection (3).

(3) Nothing in subsection (2) shall apply to any office constituted by or provided for in this Act.

24. TERMS AND CONDITIONS OF EMPLOYMENT
(1) The terms and conditions of employment of all the staff of the University shall be such as may be prescribed.

(2) Notwithstanding subsection (1), a person seconded to the service of the University from the service of any other University or similar institution, the Government or any other public institution or authority shall be employed on such terms and conditions as may be agreed between the council and the seconding body or authority.

28. (1) The administrative staff of the University shall comprise of—

- (a) the Registrar,
- (b) the Bursar,
- (c) the Dean of Students,
- (d) such other members of the staff of the University not engaged in teaching or research as the Council may, from time to time, determine.

29. (1) **APPOINTMENT OF ADMINISTRATIVE STAFF**
The powers of making appointments to the office of administrative staff, other than the office of Registrar, are hereby vested in the Council.

(2) The Council may delegate its power under subsection (1) in relation to any office to the Appointment Committee, subject to section 33.

30. **PERFORMANCE OF FUNCTIONS IN ABSENCE OF LEADING OFFICER**
(1) In the event of the incapacity of the Vice-Chancellor, the functions of the office of Vice-Chancellor shall be discharged by the Deputy Vice-Chancellor.

(2) In the event of the simultaneous incapacity of the vice-chancellor and the Deputy Vice-Chancellor, the functions of the office of vice-chancellor shall be discharged by the Registrar.

(3) In the event of the incapacity of the Deputy Vice-Chancellor, the Registrar, a Dean or a Director, the Vice Chancellor may, if in his opinion it is necessary or desirable to do so appoint an officer to act in that office whose holder is incapacitated until such time as the incapacity ceases.

(4) In the event of the incapacity of the holder of any other senior office on the administrative staff, the Registrar may, if in his opinion it is necessary or desirable to do so, appoint an officer to act in the office whose holder is incapacitated until such time as the incapacity ceases.

(5) a person who acts in the office whose holder is incapacitated may while he so acts, be paid an acting allowance at such rate as may be prescribed.

(6) the functions of the office concerned by reason of illness or other cause of any nature, and the term "incapacitated" shall be construed accordingly.

31. **TERMINATION OF APPOINTMENTS AND DISCIPLINARY ACTION**
The power of dismissing or terminating the appointment of any officer by way of disciplinary action or of punishing any member of staff other-wise than by dismissal or termination of his appointment for any disciplinary offence are hereby vested in the Council.

32. **NO DISMISSAL WITHOUT INQUIRY**
Notwithstanding section 31, the power to dismiss an officer by way of a disciplinary action shall not be exercised unless—

- (a) A disciplinary charge is made against the officer, and
- (b) the officer is afforded a fair opportunity to answer the charge, and
- (c) an inquiry is held into the charge in accordance with regulations made by the Council in that behalf.

33. **DELEGATION OF FUNCTIONS**
The Council may, by regulations made under this Act, delegate all or any of the powers vested in it by sections 23, 27, 29 and 31 to the Appointment Committee, the Vice-Chancellor, the Deputy Vice-Chancellor, the Registrar or any other officer of the University, subject to such limitations as the Council may specify.

(2) Until such time as regulations are made by the Council delegating its functions of making appointments to offices in the service of the University, the provisions of the Second Schedule to this Act shall have effect.

(g) The Academic Staff Association

34. (1) **ESTABLISHMENT OF ASSOCIATION**
There is hereby established an association of the academic staff of the University which shall be known by such name as shall be agreed upon by its founder members and approved by the Chancellor by notice published in the Gazette.

(2) every member of the academic staff of the University shall be deemed to have become a member of the Association upon his appointment to an office in the academic service of the University, and his membership shall terminate upon the cessation of his employment in an office of academic staff.

(3) The affairs of the association shall be conducted in accordance with its constitution, which shall be approved by the Council, and subject to this Act.

FUNCTIONS OF THE ASSOCIATION
35. The functions of the association of academic staff shall be—

- (a) To stimulate and promote meaningful discussion amongst the staff and students of the University on matters of academic interest,
- (b) to foster and promote the more effectual performance by the University of its academic functions,
- (c) to initiate and promote discussion and seek action to be taken by the relevant authority on any matter relating to the general welfare of the academic staff of the University or of the welfare of any of them.
- (d) to sponsor social and other functions for the purposes of enhancing the intellectual and cultural development of the University.
- (e) to co-operate with other organs of the University in matters of general interest to the University community.

PART V STUDENT DISCIPLINE

36. In this Part, unless the context requires otherwise—
"Disciplinary authority" means the Registrar exercising the powers conferred upon him by section 387 and includes any person to whom such powers have been delegated in accordance with section 39.

"Disciplinary offence" means the contravention of any by-laws under section 37 where the contravention constitutes a disciplinary offence.

37. (1) The Council may make by-laws designed to secure the maintenance of discipline amongst the students.

(2) By-laws made under subsection (1) may provide that the contravention of any of the by-laws shall constitute a disciplinary offence and may further provide the punishment that may be imposed for such a disciplinary offence.

(3) It shall not be necessary for the by-laws made under this section to be published in the Gazette but every such by-laws shall be brought to the notice of the students in such manner as the Council may determine.

38. Every charge of disciplinary offence against a student shall be investigated by the Registrar who shall impose such punishment as he may consider appropriate after enquiring into the offence in

accordance with the procedure prescribed by section 42 and upon being satisfied that the charge against the student has been proved.

39. REGISTRAR MAY DELEGATE POWERS OF DISCIPLINARY AUTHORITY
The Registrar may, by writing under his hand, delegate, subject to such limitations as he may prescribe all or any of powers vested in him by section 40 to the Dean of Students a Dean of Students or a Director.

40. (1) Disciplinary proceedings under this Part may be either formal or summary.

(2) Formal proceedings shall be instituted where, in the opinion of the disciplinary authority, the disciplinary offence which the student is alleged to have committed is of such gravity that should he be found guilty of it, it may warrant his dismissal or rustication from the University.

(3) Summary proceedings may be instituted where, in the opinion of the disciplinary authority, the disciplinary offence which the student is alleged to have committed is of such gravity that should he be found guilty of it, may not warrant his dismissal or rustication from the University.

(4) Notwithstanding the nature of the procedure intended to be adopted by the disciplinary authority, no disciplinary proceedings shall be instituted against any student after the expiration of thirty days from the date of commission of a neglect, offence or, in the case of a continuance of injury or damage, within fifteen days next after its cessation.

CASES OF FORMAL PROCEEDINGS
41. (1) No formal proceedings for a disciplinary offence shall be instituted against a student unless he is previously served with a copy of the charge setting out the nature of the offence which he is alleged to have committed, and the charge shall be prepared by the disciplinary authority after carrying out such preliminary investigations as he may consider necessary. The charge shall state briefly the nature of the offence which the accused is alleged to have committed, and shall set out in concise form the allegations made against the accused student.

(2) The charge as drawn up shall then be served upon the accused student, together with a notice addressed to him, inviting him to state in writing, and within such period as may be specified in the notice, the grounds upon which such he relies to exculpate himself.

- (3) Where the accused student fails or refuses to make representations in writing giving grounds upon which he relies to exculpate himself within the period prescribed in the notice, or makes representations which in the opinion of the disciplinary authority do not amount to complete defence of the offence charged, the disciplinary authority shall appoint an inquiry officer or officers, to hold an inquiry into the charge.
- (4) The Inquiry Officer shall notify the accused student of the day, date, time and place and at which the inquiry shall be held. The inquiry shall not be open to the public.
- (5) The accused student shall have a right to appear before the Inquiry Officer, examine witnesses and be heard in his own defence, save that failure by the accused student to appear at the inquiry shall not vitiate the proceedings.
- (6) The accused student shall have a right:-
 - (a) To cross-examine any witness examined by the Inquiry Officer or by the disciplinary authority or his representative,
 - (b) To examine and make copies of any document produced as evidence against him
 - (c) To call witnesses on his own behalf and produce any document relevant to the inquiry.
- (7) The inquiry Officer may take into consideration any evidence which he considers relevant to the subject of the inquiry before him, notwithstanding that such evidence would not be admissible under the law relating to evidence, and shall record the gist of the evidence adduced before him.
- (8) Upon the conclusion of the inquiry, the Inquiry Officer shall forward the record of proceedings before him, together with his report on the proceedings to the disciplinary authority.
- (9) A report under sub-section (8) shall-
 - (a) state whether in the opinion of the Inquiry Officer the charges against the accused student have been proved,
 - (b) state the reason or reasons for holding that opinion,
 - (c) state any fact which, in the opinion of the Inquiry Officer, aggravates or mitigates the gravity of the act or omission which was the subject matter of the charge,
 - (d) state any other fact which in the opinion of the Inquiry Officer is relevant but shall not contain any recommendation as to the form or nature of the punishment to be awarded.

- (10) Upon receipt of the record of proceedings and the report, the disciplinary authority shall, after considering the evidence and the report of the Inquiry Officer, make and record a finding whether or not, in his opinion, the accused student is guilty of the disciplinary offence with which he was charged.
 - (11) Where the disciplinary authority's finding as to the guilt or innocence of accused is contrary to the opinion of the Inquiry Officer as expressed in his report, the disciplinary authority shall record his reasons for the finding.
 - (12) Where the disciplinary authority finds the accused student guilty, he shall proceed to award the punishment prescribed by the by-laws in respect of the disciplinary offence or such lesser punishment as he deems appropriate.
- CASES OF SUMMARY PROCEEDINGS**
- 42. (1) Where the disciplinary authority decides to institute summary proceedings against an accused student, he shall cause a statement giving particulars of the charge or charges to be prepared and served upon the accused student.
 - (2) The disciplinary authority shall appoint the day, time and place for the investigation of the charges and shall give the accused student notice of it.
 - (3) The investigation of the charge or charges shall be carried out in such manner as the disciplinary authority may determine. The accused student shall have a right to appear at the investigation and make his defence, but failure or refusal by him to attend the investigation shall not vitiate proceedings.
 - (4) Where at any stage of the proceedings before the finding is made, it appears to the disciplinary authority from the nature of the facts and circumstances disclosed that it is necessary or desirable that the matter be dealt with by way of formal proceedings, the disciplinary authority may terminate the summary proceedings and institute formal proceedings in accordance with section 41.
 - (5) Upon the conclusion of the investigation the disciplinary authority shall make a finding whether or not, in his opinion, the accused student is guilty to the disciplinary offence or offences with which he is charged, and if he finds the accused student guilty, the disciplinary authority shall proceed to award such punishment as he may consider appropriate, save that under no circumstances shall, on

investigation under this section, the accused student be punished by dismissal or rustication from the University.

(1) There is hereby established a Committee to be known as the Disciplinary Appeals Committee of the University.

(2) The Disciplinary Appeals Committee shall be composed of:

- (a) a Chairman, who shall be appointed by the Minister,
- (b) four members elected by the Council from amongst its members, one of whom shall be a member elected to the Council by the Students' Organization,
- (c) a legally qualified person holding office in the Attorney-General's Chambers nominated in that behalf by the Attorney-General.

(3) The quorum of the meetings of the Disciplinary Appeals Committee shall be the chairman and four other members, one of whom shall be the member referred to in paragraph (c) of subsection (2).

(4) The provisions of the First Schedule to this Act shall apply *mutatis mutandis* in relation to the tenure of office of the members of the Disciplinary Appeals Committee, their retirement, the right to terminate their appointment, and appointment of a new member to fill any vacant, and also in relation to the proceedings and meetings of the Committee, as they apply to the Council.

APPEALS

(1) Where a student has been punished for any disciplinary offence and he wishes to appeal, he may, carrying out the punishment, appeal to the Disciplinary Appeals Committee within thirty days of the decision of the disciplinary authority.

(2) Where a student wishes to appeal pursuant to subsection (1), he shall, within not more than three days of the decision of the disciplinary authority, give a written notice of his intention to so appeal to the disciplinary authority who shall forth with submit it to the Chairman of the Disciplinary Appeals Committee.

(3) On every appeal under this section the student appealing and the disciplinary authority shall both have a right to appear before and be heard by the Disciplinary Appeal Committee.

(4) On an appeal under this section the Disciplinary Appeals Committee may—

- (a) set aside the finding made against the student and the punishment imposed on him, or
- (b) uphold the finding and reduce or enhance the punishment imposed upon the student.

(5) Notwithstanding subsection (4) (c) where the investigations of the offence by the disciplinary authority was conducted in accordance with the summary procedure prescribed by section 42, the Disciplinary Appeals Committee shall not enhance the punishment to dismissal or rustication from the University.

DISCIPLINARY OFFENCES NOT CRIMINAL OFFENCES CAP I
45. For the purposes of section 48 of the Interpretation of Laws and General Clauses Act, 1972, disciplinary offences under this Act shall be deemed not to be offence created by or under any written law.

DECISIONS NOT SUBJECT TO REVIEW
46. Subject to the provisions of section 44 relating to appeals to the Disciplinary Appeals Committee, no decision of an Inquiry Officer, the disciplinary Committee shall be subject to review by any court.

PART VI CONSTITUENT COLLEGES

PRESIDENT MAY ESTABLISH CONSTITUENT COLLEGES
47. (1) The President may, after consultation with the Council, by order published in the Gazette—

- (a) establish any college as a constituent college of the University.
- (b) declare any institution of learning, higher education or training established by or under any written law, or owned by the Government or a parastatal organization, to be a constituent college of the University or a Faculty or Institute, of the University.

(2) Where the President establishes, or declares an institution to be, a constituent college, he may, either as Chancellor or after consultation with the Chancellor appoint a Principal of that constituent college.

(3) Where the President declares any institution to be a constituent college, Faculty or Institute, of the University, he may upon the advice of the Council—

(a) by the same or subsequent order make such provision for the administration of the Constituent College, Faculty or

Institute, as he may consider appropriate, modify any of the provisions of this Act so as to provide for the representation of that college. Faculty or Institute, on the Council, the Senate or a Board,

- (b) by the same or subsequent order—
- (i) transfer the assets and liabilities of that institution to the University,
- (ii) transfer any person who is an employee of that institution to be a Constituent College, Faculty or Institute of the University pursuant to subsection (1), he may, by the same or subsequent order repeal or amend, as he may deem necessary, the written law, if any, by or under which that institution was established, and every such order repealing or amending such written law shall have the same effect as if the repeal or amendment, as the case may be, were effected by this Act.
- (5) Where the President vests any asset or liability of an institution in the University in pursuance of this section, the asset or liability to which the order relates shall, by virtue of that order and without further assurance, vest, in the University.
- (6) Where in pursuance of this section the President may transfer any employee of an institution to the service of the University—
- (a) the employee shall, as from the date of the transfer, be deemed to be an employee of the University,
- (b) the terms and conditions of service applicable to the employee after the transfer shall be in accordance with this Act and the regulations, but shall not be less favourable than those he was entitled to before the transfer,
- (c) for the purpose of determining any right to gratuity or any other superannuation benefit, the service of the employee with the University shall be regarded as continuous with his service immediately preceding the transfer, and
- (d) the employment of that employee immediately before his transfer and his employment by the University by one employer within the meaning of section 8A of the Severance Allowance Act, 1962, and that Act shall apply

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to the parties in the same manner as it applies to the cases set out in subsection (1) of the said section 8A.

- (7) Where in pursuance of this section the President vests any asset or liability of an institution in the University, he may make provision in respect of the transfer of the rights and liabilities of the institution to the University under any contract, guarantee, agreement, bond, authority, mortgage, charge, bill of exchange, promissory note, bank draft, bank cheque, letter of credit or any other security or instrument of any kind and he may provide for the substitution of the University as the party to it.
- (8) Where in the exercise of the power vested in him by this section the President declares any institution to be a Faculty or an Institute of the University, the Faculty or Institute, shall be deemed to have been established by section 19.
- (9) For the purpose of this section, "parastatal organization" means—
- (a) a local government authority,
- (b) any body corporate established by or under any written law other than a company registered under the Companies Ordinance,
- (c) Chama cha Mapinduzi, any organ of Chama cha Mapinduzi or any body of persons, whether corporate or incorporated, which is affiliated to or established by Chama cha Mapinduzi,
- (d) any company registered under the Companies Ordinance fifty-one or more of whose share capital is owned by the Government or by a parastatal organization.
- (10) The President may, in any order made under this section, make such supplementary, transitional or consequential provisions as he may deem necessary or expedient to give effect to it.
- (11) Every order made under subsection (1) shall be subject to approval by resolution of the National Assembly at its next meeting following the making of that order.

PART VII
THE CONVOCATION

THE CONVOCATION OF THE UNIVERSITY

48. (1) There is hereby established a Convocation of the University of Agriculture Morogoro, which shall consist of—

- a) the Vice-Chancellor,
- (b) The Deputy Vice-Chancellor,
- (c) all members of the academic staff,
- (d) subject to subsection (2), all persons who are graduates from the Faculty of Agriculture of Makerere College associated with the University of London, or of the University of East Africa,
- (e) subject to subsection (2), all persons who are graduates from the Faculty of Agriculture, Forestry and Veterinary Science of the University of Dar es Salaam established by the University of Dar es Salaam Act, 1970, and all persons who become graduates of the University of Agricultural Sciences,
- (f) such persons as the Chancellor may, upon recommendation by the Council, appoint to members of the convocation.

(2) No graduate referred to in subsection (1) (d) and (e) shall become a member of the Convocation unless he is ordinarily resident in the United Republic.

(3) The Registrar shall cause to be compiled and maintained a Convocation Roll in which he shall enter the names of all persons who are, for the time being, members of the Convocation.

FUNCTIONS OF THE CONVOCATION

49. The Convocation may meet and discuss any matter within the sphere of competence of the University and to transmit any resolution arising from such discussion to the Chancellor and the Minister, or to the Council to the Senate, as the convocation may consider appropriate.

MEETINGS OF THE CONVOCATION

50. (1) The Convocation shall at its meeting elect from amongst its members a President of the Convocation.

(2) The President of the Convocation shall, subject to his continuing to be qualified to be a member of the Convocation and unless he sooner dies or resigns, hold office for a period of three years and shall be eligible for re-election.

51. (1) The Registrar shall be the Secretary of the Convocation.

(2) The Convocation shall meet at such times as may be necessary or expedient for the transaction of its business.

(3) The Secretary shall give to every member of the Convocation at least twenty-one days, notice of the date, time and place of meeting.

(4) The President of the Convocation shall preside over the meetings of the Convocation.

(5) Where at any meeting of the Convocation the President is absent the members present may elect from amongst their number a temporary chairman who shall preside over the meeting.

(6) Fifteen members shall constitute a quorum for a meeting of the Convocation.

(7) A decision of the majority of the members present and voting at a meeting of the Convocation shall be deemed to be a decision of the Convocation.

(8) In the event of an equality of votes, the President or the temporary Chairman, as the case may be, presiding over the meeting, shall have a casting vote in addition to his deliberative vote.

(9) No proceeding of the Convocation shall be invalid by reason only of the fact that a person who is entitled to be a member of the Convocation has not been registered in the Convocation Roll.

52. (1) THE REGISTRAR TO REPORT TO COUNCIL AND CHANCELLOR
The Registrar shall report to the Council the activities of the Convocation and shall transmit to the Chancellor, the Council or the Senate, as the case may be, any resolution passed by the convocation.

(2) The Registrar shall send a copy of the minutes of every meeting of the Convocation to the Chancellor and the Minister.

PART VIII
FINANCIAL PROVISIONS

COUNCIL TO BE RESPONSIBLE FOR

53. The Council shall manage all the assets and properties, movable and immovable, of the University, in such manner and for such purposes as in the opinion of the Council would promote the best interest of the University.

MANAGEMENT OF ASSETS etc.

54. The funds and resources of the University shall consist of—

- (a) such sums as may be provided for the purposes of the University by Parliament, either by way of grant or loan,
- (b) such sums as the Council may, from time to time, borrow for the purposes of the University, and
- (c) such sums as may in any manner become payable to or vested in the University either under the provisions of this Act or incidental to the carrying out of its functions.

POWER TO INVEST

55. The Council shall have power to invest the funds of the University in such investment, and subject to such conditions, as are prescribed by Trustee Investments Act, 1967, in relation to investment of funds by a trustee

COUNCIL MAY ALTER FINANCIAL YEAR

56. Notwithstanding the period specified in the definition "financial year" in section 2, the Council may determine any other period of twelve consecutive months which shall constitute the financial year of the University:

Provided that, in the event of any change in the financial year and for the purposes of the transition from one financial year and for the purpose of the transition from one financial year to another, the transitional period, whether of more or less than twelve months, shall be regarded as if it were a financial year.

ANNUAL ESTIMATES

57. (1) At least two months before the commencement of any financial year, the Bursar shall prepare or cause to be prepared for the approval of the Council annual estimates of the revenue and expenditure of the University for the ensuing financial year.

(2) The Council shall, before the commencement of a financial year, consider and approve, subject to such modifications and amendments as it may consider appropriate the

estimates prepared in accordance with subsection (1).

- (3) The annual estimates shall contain provision for all the estimated expenditure during the ensuing financial year and in particular—
- (a) for the payment of salaries, allowances, passages and other charges in respect of officers of the University including the Vice-Chancellor, the Deputy Vice-Chancellor, the Registrar,
 - (b) for the payment of allowances, fees and expenses in respect of the member of the Council, the Senate, the Convocation, the Board and Committees,
 - (c) for the payment of all pensions, gratuities and other charges in respect of retiring benefits which are payable out of the funds of the University,
 - (d) for the construction, improvement maintenance and replacement of any building or other immovable property of the University,
 - (e) for the proper maintenance and replacement of the furniture and equipment of the University,
 - (f) for the creation of such reserve funds to meet future contingent liabilities as the Council may think fit.
- (4) No expenditure shall be incurred for the purpose of the University except in accordance with the provisions of the annual estimates or in accordance with the provisions of any supplementary estimates, by the Council be forwarded to the Chancellor and the Minister.
- ACCOUNTS AND AUDIT**
58. (1) The Council shall cause to be kept proper accounts and shall, as soon as practicable after the end of each financial year, cause such accounts relating to such financial year together with—
- (a) a statement of income and expenditure during such financial year, and
 - (b) a statement of the assets and liabilities of the University on the last day of such financial year, to be submitted to and audited by the Tanzania Audit Corporation established by the Tanzania Audit Corporation Act, 1968, in accordance with the procedure prescribed by the provisions of that Act.
- (2) Copies of the statements referred to subsection (1) and a copy of the auditor's if any, shall be forwarded to the Chancellor and the Minister.

59. The Vice-Chancellor shall at the end of each financial year prepare a report on the activities of the University during that financial year and submit such report to the Chancellor and to the Minister.

functions and objects of the University.

(2) Regulations made under this section shall be published in the Gazette.

ANNUAL STATEMENT OF ACCOUNTS AND VICE CHANCELLOR'S REPORT TO BE LAID BEFORE NATIONAL ASSEMBLY

60. The Minister shall lay before the National Assembly, as soon as may be practicable after he has received them—

- (a) copies of the statement referred to in subsection (1) of section 58,
- (b) a copy of the auditor's report, if any,
- (c) a copy of the Vice-Chancellor's report.

PART IX MISCELLANEOUS PROVISIONS

61. (1) With the consent of the Chancellor the Council may make regulations for the better carrying out of the purposes of this Act, and without prejudice to the generality of the foregoing may make regulations—

- (a) prescribing the degree, diplomas, certificates and other awards which may be conferred or granted by the University,
- (b) prescribing the conditions which must be satisfied before the certificate or other award,
- (c) prescribing the manner in which a degree may be conferred or a diploma, certificate or other award may be granted,
- (d) regulating the administration of any Constituent College, Faculty or Institute established by or under this Act,
- (e) prescribing the manner in which by-laws made by the Senate under section 17 shall be submitted to the Council for its approval,
- (f) regulating the conducting of examinations,
- (g) prescribing fees for admission to the University, a Constituent College, Faculty or Institute established by or under this Act,
- (h) prescribing fees payable by the candidates for any examination held or conducted by the University,
- (i) providing for and regulating disciplinary proceedings against the officers of the University,
- (j) prescribing anything which may be prescribed under this Act,
- (k) governing any matter in respect of which regulations may be made under this Act,
- (l) providing for any matter or thing which, in the opinion of the Council, is necessary to provide for the furtherance of the

62. The Council may with the approval of the Chancellor, issue directions prescribing fees and allowances payable to the members of the Council, the Senate, the Convocation or a Board.

FEES AND ALLOWANCES

63. The Chancellor may give the Council directions of a general or specific character and the Council shall give effect to every such direction.

CHANCELLOR MAY GIVE DIRECTIONS

PROTECTION OF MEMBERS OF COUNCIL, SENATE, CONVOCATION AND BOARDS

64. No matter or thing done by any member or officer of the Council, the Senate, the Convocation or a Board shall, if done for bonafide in the execution or purported execution of the functions of such Council, Senate, Convocation or Board, as the case may be, render such member or officer personally liable for such matter or thing.

PROCEEDINGS OF SENATE OR BOARD NOT BE INVALID BY REASON OF IRREGULARITY

65. No act or proceeding of the Senate or a Board shall be invalid by reason only of any vacancy in the membership there, or any defect in the appointment of any member or of the fact that any member was at the time in question disqualified to act as such.

TRANSITIONAL PROVISIONS

66. (1) The consequential and transitional provisions set out in the Third Schedule to this Act shall apply and have effect from the date on which this Act comes into operation.

(2) The President may at any time before the thirty-first day of December, 1984, by order published in the Gazette, amend the provisions of the Third Schedule to this Act, if, in his opinion, such amendments are necessary or desirable.

**FIRST SCHEDULE
PROVISIONS RELATING TO THE COUNCIL**

TENURE OF OFFICE OF CHAIRMAN

1. The Chairman of the Council shall hold office for a period of four years from the date of his appointment.

TENURE OF OFFICE OF MEMBERS

2. Subject to the provisions of this Schedule, the term of office of all members of the Council other than the Chairman and the ex-officio member shall be three years and all such members shall retire on the last day of June, 1987 and on the last day of June in every third year thereafter, and their places shall be filled by the newly appointed, or as the case may be, elected members who shall come into office immediately upon such retirement:
Provided that—

- (a) nothing in this Schedule shall be construed as preventing any person otherwise eligible to be appointed or elected as member from being re-appointed or, as the case may be re-elected for another term of office.
- (b) in the case of a member elected by the National Assembly, he shall cease to hold office if at any time prior to the date of his retirement he ceases to be member of the National Assembly,
- (c) in the case of a member elected by the Students' Organisation, he shall cease to hold office if at any time prior to the date of his retirement under this paragraph he ceases to be a student.

3. Nothing in paragraph 2 shall be construed as preventing any appointing authority from terminating the appointment of any member appointed or elected by it prior to the date when such member is required to retire from office under paragraph 2.

ABSENT FROM THREE CONSECUTIVE MEETINGS

4. Where any member absents himself three consecutive meetings of the Council without reasonable excuse the Council shall advise the appointing authority may if it deems so to do terminate the appointment of the member and appoint or, as the case may be elect another member in his place.

WHERE MEMBER CEASES TO

5. (1) Where any member of the Council ceases to be such member by resignation or death or by virtue of the operation of the provisions to paragraph 2 or is unable to perform his functions as such member by reason of his absence from the United Republic or by reason of any infirmity of body or mind or where the appointing authority terminates his

appointment under paragraph 3 or paragraph 4 the appointing authority may appoint or as the case be elect another member in his place and the member so appointed or elected shall subject to the provisions of this Schedule hold office for the remainder of the term of his predecessor.

(2) Where in the opinion of the appointing authority, the absence or infirmity of any member is of a temporary nature only it may appoint or as the case may be elect a temporary member to take his place and such temporary member shall have so long as he remains a temporary member with all the powers and functions of a member of the Council.
Provided that on the resumption of office by the substantive member the temporary member shall cease to hold office.

REGISTRAR ENTITLED TO ATTEND MEETINGS

6. The Registrar shall have a right to be present at every meeting of the Council and to participate in its deliberation but shall have no right to vote.

VICE CHAIRMAN

7. The Council shall elect one of its members to be the Vice-Chairman and any member elected as Vice-Chairman shall subject to his continuing to be a member, hold office of Vice-Chairman for a term of one year from the date of his election and shall be eligible to be re-elected.

POWERS OF CHAIRMAN AND VICE CHAIRMAN

8. (1) The Chairman shall preside at all meetings of the Council.

(2) Where at any meeting of the Council, the Chairman is absent, the Vice-Chairman shall preside.

(3) In the absence of both the Chairman and the Vice-Chairman at any meeting of the Council, the members present may, from amongst their number, elect a temporary Chairman who shall preside at that meeting.

(4) The Chairman, Vice-Chairman or temporary Chairman presiding at any meeting of the Council shall have a vote and, in the event of an equality of votes, shall have a casting vote in addition to his deliberative vote.

MEETING AND PROCEDURE OF COUNCIL

9. (1) Subject to any general or specific direction by the Chancellor, the Council shall meet not less than four times during every financial year and at such additional times as may be fixed by the Chairman or, if he is absent from the United Republic or unable reason to act the Vice-Chairman.

Provided that the Chairman or, if he is absent from the United Republic or is unable for any reason to act, the Vice-Chairman shall, at the request of at least ten members, summon a meeting of the Council within thirty days of such request being made to him in writing.

- (2) The Secretary of the Council shall give to each member not less than fourteen days' notice of the time and place of the meeting.
10. (1) At any meeting of the Council not less than one-third of the members in office for the time being shall constitute a quorum.
- (2) If a quorum is not present within half-an-hour of the time appointed for the meeting the members present, or the Secretary if no member is present, may adjourn the meeting to any time not later than fourteen days from the date of adjournment.

11. Subject to the provisions relating to a casting vote, all questions at a meeting of the Council shall be decided by a majority of the votes of the members present at the meeting, and if any member fails or refuses to vote on any question, his vote shall be counted in the negative.

DECISIONS OF COUNCIL

12. Notwithstanding the foregoing provisions of this Schedule, decisions may be made by the Council without a meeting, by circulation of the relevant papers among the members and the expression of the views of the majority thereof in writing:

Provided that any member shall be entitled to require that any such decision be deferred and the subject matter be considered at a meeting of the Council.

13. (1) The seal of the University shall be of such shape, size and form as the Council may determine.
- (2) The seal shall be affixed in accordance with section 5, and the person or persons present shall sign over or underneath the seal in witness thereof.

14. Subject to paragraph 13, all conveyances, transfers, contracts, guarantees, agreements, bonds, authorities, mortgages, charges, bills of exchange, promissory notes, bank drafts, letters of credit, securities and other instruments whatsoever to which the

EXECUTION OF CONTRACTS etc

University is a party shall be executed on behalf of the University by—

- (a) the Vice-Chancellor, or
 (b) the Registrar, or
 (c) such other officer of the University as the Vice-Chancellor may appoint in that behalf.

15. Subject to the provisions of this Schedule the Council may regulate its own proceedings.

SECOND SCHEDULE

PROVISIONS RELATING TO APPOINTMENT OF STAFF

1. (1) Where a vacancy occurs in the post of the Dean of Students, the Bursar or any Senior Administrative Officer, if and the Registrar is of the opinion that the vacancy should be filled by promotion from amongst the officers of the University, he shall, after consultation with the Vice-Chancellor, propose to the Appointment Committee the name or names of the officer or officers who in his opinion is or are suitable for the promotion.
- (2) Where the Registrar is of the opinion that the vacancy be filled by an appointment otherwise than an promotion, he shall cause the vacancy to be advertised in such manner as he may consider fit and shall, after consultation with the Vice-Chancellor, propose to the Appointment Committee the name of the candidate who in his opinion is most suitable for appointment to the post.
- (3) The Appointment Committee shall after considering the applications and the recommendations of the Registrar make an appointment:
- Provided that an appointment to the post of the Dean of Students or the Bursar shall be subject to the approval of the Council.
- (4) For the purpose of this Schedule "Senior Administrative Officer" means a member of the administrative staff holding a post of the salary or the maximum of the salary scale of which exceeds thirty thousand shillings per annum.
2. (1) Appointment to any post on the administrative staff the salary or the maximum of the salary of which exceeds fifteen thousand shillings per annum may be made by the Vice-

2. All the assets and liabilities of the former University, with respect to the former faculty subsisting upon the effective date shall, by virtue of this Act and without further assurance, vest in the University and the former Council, the faculty, or any former institute, as the case may be, shall, as from the effective date, be discharged from its obligations in respect of every such liability.

UNIVERSITY TO CONTINUE FUNCTIONS OF FORMER UNIVERSITY AT MOROGORO

3. The University shall carry out and continue the functions of the former university in accordance with the provisions of this Act and all the students who immediately before the effective date were the students of the former university shall, as from the effective date, become students of the University.

4. (1) Subject to the provisions of paragraph 5, every former officer shall, as from the effective date, be deemed to be an employee of the University.

(2) Where a former officer becomes employed by the University by virtue of sub-paragraph (1), the terms and conditions of service of his employment in the service of the University shall be in accordance with the provisions of this Act and any regulations made hereunder:

Provision that this sub-paragraph shall not apply so as to permit any reduction in the salary to which such former officer was entitled immediately before the effective date.

(3) Every former officer who, by virtue of this paragraph, becomes an employee of the University shall be deemed to have been appointed to the service of the University on the effective date in accordance with the provisions of this Act:

Provided that-

- (a) for the purposes of determining any right to a gratuity or other superannuation benefit, his service with the University shall be regarded as continuous with his services immediately preceding the effective date,
- (b) his employment immediately prior to the effective date and his employment by one employer within the meaning of section 8A of the Severance Allowance Act, 1962, and that Act shall apply to the parties in the same manner as it applies to the cases set out in subsection (1) of the said section 8A.

Chancellor after consultation with the Registrar and subject to the approval of the Appointments Committee.

(2) Appointment to any post on the administrative staff the salary scale of which exceeds nine thousand shillings per annum but does not exceed fifteen thousand shillings per annum may be made by the Vice-Chancellor after consultation with the Registrar.

(3) Appointment to any post on the administrative staff, the salary or the maximum of the salary scale of which does not exceed nine thousand shillings per annum may be made by the Registrar.

(4) The Registrar may delegate the power of making appointment conferred upon him by sub-paragraph (3):-

(a) in relation to any post the salary or the maximum of the salary scale of which exceeds six thousand shillings per annum, to a senior administrative officer,

(b) in relation to any post, the salary or the maximum of the salary scale of which does not exceed six thousand shillings per annum, to any officer who is in receipt of a salary of fifteen thousand shillings or more per annum.

THIRD SCHEDULE
CONSEQUENTIAL AND TRANSITIONAL PROVISIONS

INTERPRETATION

1. In this Schedule, unless the context otherwise requires-

"effective date" means the first day of July, 1984,

"former university" means the University of Dar es Salaam,

"former Council" means the Council of the University of Dar es Salaam,

"former faculty" means the Faculty of Agriculture, Forestry and Veterinary Science,

"former officer" means any person employed on the academic staff or the administrative staff of the former university or the former institutes immediately preceding the effective date and includes the persons so employed as the Dean of the former university or as the Director of a former institute.

5. (1) The Dean of the Faculty of the former University shall cease, with effect from the effective date, to hold the office of Dean:

DEAN

Provided that the Vice-Chancellor may, after consultation with the University, and where any such former Dean as Dean of a Faculty of the University, and where any former Dean is so appointed he shall be deemed to have been appointed in accordance with the provisions of the Act.

(2) Where a former Dean is not appointed as Dean of a Faculty of the University in accordance with the provision to sub-paragraph (1), he shall be deemed to have been employed on the academic staff of the University in a post of a rank not lower than the rank he held in the former university prior to his appointment as Dean or in such other post as the President may determine.

(3) Subject to sub-paragraph (2), a former officer shall not, notwithstanding any provision of the terms and conditions applicable to his employment immediately preceding the effective date of any provision of any contract regulating his employment immediately preceding the effective date, be entitled to claim from the former Council or the University any damages or other payment of any kind for any loss suffered by him by reason of the operation of the provisions of this Schedule.

DISCIPLINARY REGULATIONS OF THE FORMER UNIVERSITY
Rules or regulations made by or under the authority of the former Council for the purposes of regulating discipline amongst the students of the former university shall, until such time as by-laws are made under section 35, continue in force and have effect as if such rules or regulations were by-laws made under section 35, and where any such rule or regulation does not prescribe the penalty which may be imposed for its contravention, the disciplinary authority as defined in Part V of this Act, may impose such penalty as it may consider appropriate.

RETAIN DEGREES OF UNIVERSITY OF DAR ES SALAAM TO CONTINUE IN FORCE UNTIL REPLACED ACT 1970 NO. 12
The provisions of the Degrees and other subsidiary legislation made under the University of Dar es Salaam Act, 1970, which relate to-

- (a) the degrees which the University of Dar es Salaam may confer.
- (b) the certificates, diplomas and other awards of the said University.

(c) the manner in which such degrees, diplomas, certificates and other awards may be conferred, shall continue in force and apply mutatis mutandis in relation to the degree, diplomas, certificates other awards of the University established by this Act as if such provisions were, contained in regulations made under section 57 until such time as regulations are made under this Act providing for degrees, diplomas, certificates and other awards of the University.

8. (1) OPERATION OF CONTRACTS etc
The instruments to which this paragraph applies are instruments (including contracts, guarantees, agreements, bonds, authority, mortality, charges, bills of exchange, promissory notes, bank drafts, bank cheque, letters of credit and securities)-

- (a) to which the former Council or the former faculty or a former institute is a party,
- (b) under which any money is or may become payable or any other property is or may become liable to be transferred, conveyed or assigned to the former Council or the former faculty or a former institute, or under which any money is or may become payable or any other property is to be or may become liable to be transferred, conveyed or assigned by the former Council or the former faculty or a former institute, which are subsisting at the effective date, other than any contract or agreement between or may become liable to be transferred, conveyed or assigned by the former Council, the former faculty or a former institute and any former officer.

(2) An instrument to which this paragraph applies shall, by virtue of this paragraph, continue in full and effect, and the University shall, by this Act-

- (a) be substituted for the former faculty of for the former institute, as the case may be, as a party thereto,
- (b) be entitled to receive and enforce payment of any money payable thereunder,
- (c) be liable to transfer, convey or assign any property which is to be transferred, conveyed or assigned thereunder, as the case may be.

Passed in the National Assembly on the eleventh day of April, 1984.

E.E. Kazimoto
Clerk of the National Assembly

付属資料5. ドナーの支援による研究協力一覧

RESEARCH PROJECTS CATALOGUE

ISBN 9987 8843 42

VOLUME 2 JULY 1997

Sokoine University of Agriculture
Morogoro, Tanzania



**RESEARCH PROJECTS
CATALOGUE**

VOLUME 2 JULY 1997

**COMPILED BY
THE DIRECTORATE OF RESEARCH AND POSTGRADUATE STUDIES
SOKOINE UNIVERSITY OF AGRICULTURE, MOROGORO, TANZANIA
JULY 1997**

Preface and Acknowledgements

This is the second issue of SUA Catalogue of Research showing on going research projects at SUA as of 30 May 1997. As was the case for Volume 1 which was produced in July 1995, this Catalogue is intended to inform SUA Community and the Public at large of the type of research activities going on at SUA. The document also intends to facilitate communication between researchers within and outside the University so as to minimize duplication of research efforts.

In this issue a total of 98 research projects which are being undertaken by 180 researchers at SUA are presented. Unlike in Volume 1, in this edition, the scope of coverage has been widened to indicate the names of other researchers and the objectives of the research.

Conduction of these researches at SUA would not have been possible without the generous support of both local and international funding agencies. The financial support of these funding agencies which currently total about 50 is highly valued.

Lastly the Directorate acknowledges the concerted efforts put up by individuals during the preparation of this document. Special thanks should go to all researchers who volunteered the information, Mr. H.D. Alli for collecting and compiling the information and Ms. L. Muhanika for typesetting the document.

W.S. Abeli
Editor

July 1997

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ACRONYMS

AAS	African Academy of Sciences
AAT	Agrochemical Association of Tanzania
ACIAR	Australian Centre for International Agricultural Research
AFRNET	African Feed Resources Network
AGROTEC	Programme on Agricultural Operations Technology for Small Holders in Eastern and Southern Africa
CIAT	Centro Internacional de Agricultura Tropical
CIDA	Canadian International Development Agency
CIFOR	Centre for International Forestry Research
CSIRO	Commonwealth Scientific Industrial and Research Organization
COSTECH	Tanzania Commission for Science and Technology
CSD	Centre for Sustainable Development
DAAD	German Academic Exchange Service
DANIDA	Danish International Development Agency
DID	Department of International Development
ECEP	Environmental Capacity Enhancement Project
EEC	European Economic Community
ELMSCU	Environmental Land Management and Soil Conservation Unit
ENRECA	Enhancement of Research Capacity in Developing Countries
EU	European Union
FAO	Food and Agricultural Organization
FFACF	French Food Aid Counterpart Fund
FINNIDA	Finnish Development Agency
GCFAD	Group of National Association of Manufacturers of Agrochemical Products
GOT	Government of Tanzania
GTZ	Technical Cooperation-Federal Republic of Germany
IIADO	Hifadhi Ardhi Dodoma
IAEA	International Atomic Energy Agency
IBSRAM	International Board for Soil Research and Management
ICRAF	International Research Centre for Agroforestry
ICRISAT	International Crop Research Institute for Semi-Arid Tropics
IDRC	International Development Research Centre
ILRI	International Livestock Research Institute
IAEA	International Agricultural Engineering Association
IFS	International Foundation for Science
IRN	Institute of Natural Resources
JICA	Japanese International Cooperation Agency
MOAC	Ministry of Agriculture and Cooperatives
NLH	Norges Landbrukshogskole
NORAD	Norwegian Agency for Development Cooperation
NORAGRIC	Norwegian Centre for International Agricultural Development
NRC	Norwegian Research Council
NRI	Natural Resources Institute
NIRP	Netherlands Israel Research Development Programme
NCA	Ngorongoro Conservation Authority
NUFU	Norwegian Council of Universities for Development Research and Education
ODA	Overseas Development Agency
OSSREA	Organization for Social Science Research in Eastern Africa

REPOA	Research on Poverty Alleviation
SACCAR	South African Countries Centre for Agricultural Research
SADC	Southern Africa Development Cooperation
SDC	Swiss Development Cooperation
SAREC	Swedish Agency for Research Cooperation with Developing Countries
SIDA	Swedish International Development Agency
SRI	Silsoe Research Institute
SUA	Sokoine University of Agriculture
TAFORI	Tanzania Forestry Research Institute
USDA	United States Department of Agriculture
USAID	United States of America Agency for International Development
WFP	World Food Programme

Currency

US \$	United States American Dollar
CAD\$	Canadian Dollar
NOK	Norwegian Kroner
ECU	European Currency Unit
DKK	Danish Kroner
SEK	Swedish Kroner
GBP	Great Britain Sterling Pound
TShs.	Tanzanian Shilling

1.0 FACULTY OF AGRICULTURE

1.1 Department of Agricultural Engineering & Land Planning

1.

Title: Publication of Kiswahili Booklet: "Tillage for Conservation of Soil and Water in Semi-Arid Tanzania"

Project Leader: Dr. H.F. Mahoo

Other Researchers: Dr. N. Hatibu, Prof. B. Kayombo, Dr. E. Mbiha, and Mr. D. Mwaseba

Starting: October 1995

Duration: 2 Years

Overall Objective: To publish a Kiswahili manual of the research findings and reports of the Soil and Water Management Research in Semi Arid Tanzania, in order to widely publicise research results to farmers.

Sponsor: SUA

Budget: Tshs. 1,715,000/=

2.

Title: Improvement of the No-Primary-Tillage (NPT) "Kubarega" Practice of Sorghum-Livestock-maize (SLM) Farming System of Semi-Arid Central Tanzania.

Project Leader: Dr. N. Hatibu

Other Researchers: Dr. H.F. Mahoo, Prof. B. Kayombo, Dr. P.J. Makungu, Dr. S.O.W.M. Reuben, Dr. G.C. Ashimogo, and Dr. F.B. Rwehumbiza.

Starting: July 1996

Duration: 2 years

Overall objective: The main objective of the proposed research project is to assess the performance and sustainability of NPT practice improved by introducing semi-permanent tied-ridging thus making the practice a "No-Primary-Tillage-Tied-Ridging" (NPTTR).

Specific objectives:

- (i) Assess the hydrological processes and performance of the NPTTR, especially in terms of:
 - run-off control and infiltration enhancement
 - available soil-moisture retention during the rain-fall season
 - drainage and water logging
 - soil-moisture availability to crops.
- (ii) Assess the performance of NPTTR practice in terms of phenology of crops, fertilizer use efficiency by crops, and yield of biomass and grains.
- (iii) Assess the economic performance of NPTTR compared to the traditional NPT
- (iv) Evaluate the acceptability and sustainability of NPTTR practice within the farmers environment, in terms of:

- socio-economic aspects
- soil types
- post-harvest grazing requirements
- mechanization and labour requirement.

(v) Test the applicability of the NPTTR practices to other areas (zones) using an existing tillage sensitive soil moisture simulation model (Makungu, 1991)

- Develop an extension and promotion strategy

Sponsor: NORAD
Budget: Tshs. 8,551,000/= (1997/98)

3.

Title: *Modelling and Measurement of Soil moisture content based on a non-contacted method

Project Leader: Mr. B. A. Salimu

Other researchers: None

Starting: September, 1996

Duration: 9 months

Overall Objective: The overall objective of this study is development of a model and an estimation method for soil moisture content based on remotely sensed data for use in tropical seasonally wet (semi-arid) conditions.

Specific Objectives:

- To develop a method of estimating soil water content using thermal infrared thermometer measurements under tropical seasonally wet semi-arid conditions.
- To couple field measurements with modelling approaches with the view of estimating profile water contents.
- To describe the relationship between soil surface-minus-air temperature difference and the profile soil water contents.
- To determine the relation between soil water content variation and diurnal soil temperature variation under tropical semi arid conditions.
- To estimate a real evaporation and sensible heat flux based on infrared thermometry measurements.
- To assess the effects of sensor orientation, cloudness cover, soil roughness and cover on the sensor response.

Sponsor: SUA
Budget: Tshs. 2,094,100/=

* *"To be submitted for PhD thesis"*

4.

Title: Conserve water to save soil and the environment
Project Leader: Prof. B. Kayombo
Other Researchers: Dr. H.D. Dihenga, Dr. M.K. Mulengera, Dr. P.S.J. Makungu
Starting: July 1994
Duration: 5 Years
Overall Objective: Evaluation of water and soil conservation dynamics of indigenous land husbandry practices in Mbinga district, Improvement and adaptation of sustainable elements of the practices to other areas with similar agroecological and socio-economic conditions.
Sponsor: ODA/SRI
Budget: 59,000 GBP

5.

Title: Combining systematic and participatory approaches for developing and promoting strategies for sustainable land and water management.
Project Leader: Dr. N. Hatibu
Other Researchers: Dr. H.F. Mahoo, Dr. M.K. Mulengera and collaborators from Ukiriguru Agricultural Research Institute (UARI), University of New Castle Upon Tyne, Makerere University and University of Leuven.
Starting: October 1996
Duration: 3 Years
Overall Objective: To develop improved methodologies for promoting sustainable improvement of soil water management practices in Semi-Arid regions through research collaboration between Europe and Developing countries. The target area is Kwimba district in the Lake Zone.
Sponsor: EU
Budget: 633,920 US\$

6.

Title: Development of improved Rainfed Cropping system incorporating rainwater harvesting/conservation.
Project Leader: Dr. N. Hatibu
Other Researchers: Dr. H.F. Mahoo, Dr. F. Rwehumbiza and collaborators from University of New Castle Upon Tyne, and Ukiriguru Agricultural Research Institute (UARI)
Starting: October 1996
Duration: 3 Years
Overall Objective: This is a phase II of the project which started in August 1992. The current phase is being implemented in Kilimanjaro and Shinyanga regions
Specific Objectives:

- Improve welfare of farm families in semi arid areas
- Increase sustainable productivity and population carrying capacity of semi arid areas
- Support shift of families from over populated areas to underpopulated areas

3

- Improvement of reliability of dryland cropping through rain water harvesting (RWH)
- Identification and farmers application of most appropriate RWH and primary tillage practices

Sponsor: DID/NRI
Budget: 319,139 US\$

7.

Title: Improvement of the practice of processing sweet potato into dry chips "michembe"

Project Leader: Dr. V.C.K. Silayo

Other Researchers: Dr. P.S. Makungu, Dr. H.S. Laswai, and Dr. E.R. Mbiha

Starting: July 1997

Duration: 2 Years

Overall objective: The main objective of the proposed research project is to improve the technology for the production and preservation of "michembe" in Shinyanga.

Specific objectives:

- Assess the performance of current production and preservation methods of "michembe"
- Develop and test improved methods and techniques for the production and preservation of "michembe"
- Assess the quality of the product in the different production stages of the improved process
- Evaluate the acceptability of "michembe" under different eating environments including rural and urban households and commercial eating places and
- Evaluate the potential of extending improved "michembe" processing and preservation methods to other sweet potato producing areas, e.g. Gairo.

Sponsor: NORAD

Budget: TShs. 7,981,000/= (1997/98)

1.2 Department of Animal Science & Production

8.

Title: Evaluation of Slaughtering Systems and their Implication on Meat Losses, Hygiene and Marketing in Morogoro Urban and Dar es Salaam City.

Project Leader: Prof. L.A. Mtenga

Other Researchers: Dr. V.R.M. Muhikambele, Dr. G.E.M. Maeda and Dr. P.S.J. Makungu

Starting: July 1996

Duration: 3 Years

Overall objective: The overall objective of the project is to evaluate the extent of meat, edible and non-edible animal by-product losses associated with the existing urban

slaughtering systems and suggest possible measures necessary for minimizing such losses.

Specific objectives:

- To evaluate the status of the present urban structures used in abattoirs and butchers.
- To evaluate the extent of meat losses and meat contamination associated with the existing urban slaughtering structures.
- To evaluate losses of edible and non edible by-products and their economical implication to the urban butchers and slaughtermen.
- To develop with the slaughtermen and butchers simple slaughtering structures and affordable methods of meat preservation.

Sponsor: NORAD
Budget: Tshs.7,655,000/=(1997/98)

9.

Title: African Feed Resources Network Evaluation of Pennisetum and Napier hybrid

Project Leader: Prof. N. Urjo

Other Researchers: Dr. E.J. Mtengeti

Starting: 1993

Duration: 4Years

Overall Objective: To evaluate potential pennisetum accessions suitable for small holder dairy farmers

Sponsor: ILRI
Budget: 9,000 US\$

10.

Title: SUA-Makerere University ENRECA Collaborative Research on Improvement of Ruminant Animal Production in Tanzania and Uganda

Project Leader: Prof. R.L. Kurwijila

Other Researchers: Dr. G.C. Kifaro, Prof. L.A. Mtenga, Dr. A. Pereka, Prof. A.E. Kimambo, Prof. F.P. Lekule

Starting: 1995

Duration: 3 Years

Overall Objectives:

- Characterisation of three straining of goats in Tanzania.
- Improvement of ruminant animal nutrition.
- Development of Farming Systems research in smallholder agriculture.

Sponsor: DANIDA - Enhancement Research Capacity Programme (ENRECA)
Budget: 3.9 mill DKK

11.

Title: Fabrication and Laboratory Testing of Pilot Model in Plastic Sacket Milk Pasteurisation Unit for Small Scale Milk Processing in Rural Areas

5

Project Leader: Prof. R.L. Kurwijila
Other Researchers: Mr. W.R. Ballegu and Dr. S.A. Nnko
Starting: July 1996
Duration: 2 Years
Overall Objective: To develop a small scale milk processing unit for use in the rural areas.
Specific objectives

- To fabricate a reciprocating in-plastic sachet milk pasteurisation unit
- To evaluate the heat transfer rates in sachets of different thickness heated while being agitated on the reciprocating machine
- To evaluate the shelf life of the milk pasteurised in combination with Lactoperoxidase system and/or double pasteurisation.

Sponsor: NORAD
Budget: Tshs.2,510,000/= (1997/98)

12.

Title: Design, Fabrication, and Testing of Biomass Powered Hatcher and Brooder for Rural Poultry Production.

Project Leader: Dr. A.M. Katule
Other Researcher: Dr. N. Hatibu
Starting: July 1996
Duration 2 Years
Overall Objective: The long-term goal of the research project is to develop and promote technologies which would make it feasible to widely hatch and brood genetically improved chicken stocks by smallholder poultry keepers in rural and suburban areas of Tanzania.

Specific objectives:

- To develop an incubator-cum-hatcher and a brooder powered by biomass energy such as heat from saw dust, rice husks, dried cow dung and decaying organic matter.
- To assess the technical and environmental suitability of the different sources of energy and that of the technology.

Sponsor: NORAD
Budget: Tshs. 2,000,000/= (1997/98)

13.

Title: Draft Animals: Use and Care of Working Animals.

Project Leader: Dr. A.A. O. Aboud
Other Researchers: Prof. A.E. Kimambo, Mr. S.H. Israel, Mr. S. Tumbo, Dr. P. Makungu, Dr. V. Silayo, Mr. I. Achimpota
Starting: 1992
Duration: 4 Years
Overall Objectives:

- To collect baseline information on the current practices of ownership feeding, breeding, training and draught assignments of donkeys
- To identify possible socio-economic constraints associated with apathy towards donkeys
- To collect descriptive Indices and characterize the local donkey population in selected areas
- To develop strategic feeding plans for working animals
- To identify factors influencing reproductive performance of female working animals.

Sponsor: NORAD
Budget: 120,000 NOK

14.

Title: Aquaculture
Project Leader: Dr. A. Katule
Other Researcher: Mr. B.V. Mnembuka
Starting: 1992
Duration: 4 Years

Overall Objectives:

- To initiate research to investigate biological production, fish health, production technology and marketing of fish. Also to accumulate knowledge of aquaculture to staff and students.
- Initiate demonstration project for full scale production.
- Develop commercial fish farming in Tanzania.

Sponsor: NORAD
Budget: 80,000 NOK

15.

Title: Farming Systems Research approach to Ruminant Production in Gairo and Turiani.
Project Leader: Prof. F.P. Lekule
Other Researchers: Mr. P.H. Petersen, Prof. R.L. Kurwijila, Dr.G.C. Kifaro, Prof. A.E. Kimambo, Dr. F.M. Turuka, Prof. L.A. Mtenga, Dr. A. Pereka, and Prof. A.A. Kasuku
Starting date: 1996
Duration: 2 Years

Overall objectives:

- (i) To characterize major farming systems and client group and diagnose priority production problems and identify opportunities.
- (ii) To analyse and document impact of past Farming Systems Research related activities
- (iii) To establish a systematic approach to information generation and monitoring on farming systems for building up research competence.

Sponsor: DANIDA

Budget: 190,000 DKK

1.3. Department of Crop Science & Production

16.

Title: Seed Bacteriology Projects
Project Leader: Dr. R.B. Mabagala
Other Researchers: Dr. A. Kihupi, Mr. H. Lyimo, TOSCA, Horticulture Tengeru
Starting: January 1996
Duration: 3 Years
Overall Objective: Establish laboratory and screen-house at SUA for conducting research and training in seed-borne bacterial diseases.
Sponsor: DANIDA
Budget: 961,720 DKK

17.

Title: Bean Improvement (Bean CRSP) Project
Project Leader: Dr. R.B. Mabagala
Other Researchers: None
Collaborators: Washington State University; University of Malawi (Bunda College); Department of Agricultural Economics and Agribusiness (SUA), Department of Agricultural Education and Extension (SUA), Department of Food Science (SUA) and Department of Soil Science (SUA)
Starting: October, 1996
Duration: 5 Years
Overall Objective: Breeding for resistance to diseases, insect pests, drought and development of acceptable fast cooking varieties for smallholder farmers.
Sponsor: USAID
Budget: 350,000 US\$

18.

Title: Breeding Rice for Resistance to Yellow mottle virus.
Project Leader: Dr. A. Kihupi
Other Reserchers: Dr. S. Msolla, Dr. R.B. Mabagala, Mr. D.M.K. Mushobozy
Dr. M.R.S. Mlozi
Starting: July 1997
Duration: 4 years
Overall Objective: The main objective is to determine the importance of rice yellow mottle virus (RYMV) in rice growing areas and to develop resistant rice varieties through plant breeding.

Specific Objectives:

- Survey and monitor the importance incidence, distribution and severity of Rice Yellow Mottle Virus (RYMV) in rice growing areas (Morogoro, Kyela).
- Study the inheritance of the disease.
- Screening of the available germplasm for resistance to RYMV) in the laboratory, screen house and under field conditions.
- Transferring resistance to RYMV to local cultivars through hybridization.

Sponsor: NORAD**Budget:** Tshs. 8,486,800/= (1997/98)

19.

Title: Sigatoka/Fusarium Research (Banana)**Project Leader:** Dr. R.B. Mabagala**Other Researchers:** Mr. A.A. Manyama (SUA), Dr. A.S. Mbwana (Maruku), Dr. A. Johanson (NRI, UK); Dr. M. Rutherford (IMI, UK).**Starting:** August, 1996**Duration:** 13 months**Overall Objectives:**

- Identify agro-ecological distribution, incidences, severity and host ranges of Sigatoka and Fusarium wilt diseases of banana.
- Determine variability of pathogens and establish database of information necessary for developing management strategies for these diseases.

Sponsor: ODA**Budget:** 10,000 GBP

20.

Title: Screening Bean Landraces for resistance to bacterial blights**Project Leader:** Dr. R.B. Mabagala**Starting:** May 1994**Duration:** 3 Years**Overall Objective:** Collect and screen bean landraces and their components for resistance to bacterial blights for use in breeding programmes.**Sponsor:** International Foundation for Science (IFS)**Budget:** 12,000 US\$

21.

Title: Groundnut Improvement on farm trials**Project Leader :** Prof. K. Sibuga**Other Researchers:** Dr. A.J.P.Tarimo**Starting:** 1996/97**Duration:** 1 Year**Overall Objectives:**

- Evaluate promising groundnut lines in farmer's fields
- Stimulate seed production at farm level

Sponsor: SADC/ICRISAT
Budget: 5,000 US\$

22.

Title: Breeding for Bruchid
Project Leader: Dr. S. N. Msolla
Other Researcher: Mr. R. N. Misangu
Starting: 1992
Duration: 4 Years
Overall Objectives:

- To incorporate bruchid resistance genes into adopted varieties
- To conduct bruchid resistance nurseries.
- To evaluate resistant varieties under traditional conditions.

Sponsor: CIAT
Budget: 12,000 US\$

23.

Title: Safe use of Pesticides Project in Tanzania
Project Leader: Prof. Allan Femi Lana
Other Researchers: Dr. S. Diwani (Bayer), Mr. E. Mutuli (MOAC)
Starting: 1995
Duration: 3 Years
Overall Objective: To establish measures that will ensure that farmers use pesticides safely
Sponsor: GCFAD/EU/AAT/SIDA
Budget: 32,000 US \$

24.

Title: Transfer of Technology of Soil Solarisation to Control Soilborne Pests in Tanzania
Project Leader: Mr. D. Mushobozy
Other Researchers: Dr. C. Stevens, Mr. V. Khan - Tuskegee University, Alabama, USA.
Starting: September, 1994
Duration: 3 Years
Overall Objective: To determine the effects of soil solarization with and without organic amendments as an on farm method to increase growth response, yield, quality and pest control for vegetables and tobacco under different soil conditions in Alabama (USA) and Morogoro (Tanzania).
Sponsor: USAID
Budget: 70,000 US\$

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1.4 Department of Food Science and Technology

25.

Title: Development and Promotion of Inexpensive Weaning/Supplementary Foods by Bioenrichment techniques using local, under-utilized legumes and cereals.

Project Leader: Mr. J.K. Mugula

Other Researchers: Dr. (Mrs) M.E. Lyimo, Dr. A.K. Kashuliza, and Dr. F.T. Magayane

Starting: July 1996

Duration: 2 Years

Overall Objective: To develop nutritious, low-cost, safe, and acceptable weaning or supplementary foods by bioenrichment techniques using local, under utilized plant foods.

Specific objectives

- To produce weaning/supplementary foods by germination and/or lactic acid *Rhizopus* mould (two-stage) fermentation (tempe) using local food substrates (such as sorghum, millets, drum-stick, cowpeas, sesame, sunflower, bambaranuts, and pigeon peas) for potential use by under-five's, school children, pregnant and lactating women.
- To evaluate the physico-chemical quality of the complemented, malted products, tempe and secondary products.
- To evaluate the chemical and microbiological storage stability of the products
- To evaluate the organoleptic acceptability of the products by target groups in different communities
- To evaluate the antimicrobial activities of the mould and lactic acid bacteria fermented product against food pathogenic microorganisms.
- To evaluate the potential adaptability and economic feasibility of household-scale processing of the products.
- To impart skills of household-scale processing of the products among individuals in the study area

Sponsor: NORAD

Budget: Tshs. 8,486,800/= (1997/98)

26.

Title: Development of Kapok fibre as a complement of cotton

Project Leader: Dr. J.L. Kinabo

Other Researchers: Dr. Z.S.K. Mvena, Dr. E.R. Mbiha and Mr. L.Y. Mwaikambo

Starting: October 1996

Duration : 1½ Years

Overall objective: To develop kapok fibre into woven fabric using installed textile machines.

Specific objectives

- To assess the possibility of developing kapok fibre in Tanzania
- To determine the physical and chemical properties of kapok and cotton fibres
- To assess the suitability of the installed textile machines for processing kapok and kapok/cotton fibre yarns and woven fabrics.

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- To determine the suitable kapok/cotton blend ratio.
- To develop end uses of kapok and kapok/cotton woven fabrics
- To disseminate research findings to interested parties.

Sponsor: NORAD
Budget: Tshs. 1,221,000/= (1997/98)

27.

Title: Collaborative project to investigate consumer preferences for selected sorghum and millet products in the SADCC region of Africa.

Project Leader: Dr. H.S. Laswai

Other Researchers: Dr. N.B. Shayo, Mr. J. Hella, Mr. S.T.P Kundi

Starting: January, 1995

Duration: 3 Years

Overall Objective: To enhance food security in Africa through promotion of drought resistant crops such as sorghum and the millets.

Specific objectives:

- To find and characterise the preferences between the cereals for different groups of consumers in Africa.
- To identify key constraints to the use of sorghum and millets for different groups of consumers, including ethnic, rural and urban groups.
- To identify sorghum varieties most suitable to meet the technological requirements and organoleptic preferences of users.
- To improve physico-chemical and functional characteristics of milled products from sorghum and the millets.
- Based on the above, to develop and promote these grains by finding new opportunities for their use. Commercial linkages will be identified for this and new technologies will be developed and promoted.
- Produce an action plan for use throughout the SADCC region, designed to promote consumption of sorghum and millets.

Sponsor: EU
Budget: 99,000 ECU

28.

Title: Development of Soybean based foods for Human use in Tanzania

Project Leader: Dr. K. Mtebe

Other Researchers: Dr. J.M. Mbogoma, Mrs. B. Ndabikunze, Mr. P. Mamiro

Starting: 1994

Duration: 18 months (Extended)

Overall Objectives:

- To establish the major constraints in soybean utilization in Tanzania
- To promote better methods for soybean processing at home level
- To promote improved methods for processing soybean based products.

Sponsor: FFACF
Budget: TShs. 19.6 million

29.
Title: Development and application of local microbial strains in the detoxification and degradation of cyanide from cassava.

Project Leader: Dr. A.B. Gidamis

Other Researcher: Dr. S. Nnko

Starting: July 1997

Duration: 3 Years

Overall objective: To find and develop suitable local microbial strains that are able to enhance detoxification and degradation of cyanide from cassava roots.

Specific objectives:

- To identify the local strains of micro-organisms found growing on cassava roots,
- To screen these local strains for the production of both Linamarase and prectolytic enzymes as well as for the ability to degrade cyanide.
- To screen local microbial strains for the ability to degrade released cyanide from the detoxification of cassava roots.
- To assess the effectiveness of these micro-organisms in the detoxification of cyanide in cassava roots and in degrading cyanide that is released.
- To assess the suitability of the selected micro-organisms for field-scale application with particular attention to the safety of the product, processing operations and the environmental compatibility.
- To establish the optimal growth conditions of the selected micro-organisms to facilitate their production in large amounts for practical applications in the fields.

Sponsor: NORAD

Budget: TShs. 3,486,000 (1997/98)

1.5. Department of Agricultural Economics & Agribusiness

30.
***Title:** Risk attitudes and perception in Agroforestry decisions in Tanzania: The Case study of Babati District.

Project Leader: Mr. E.M. Senkondo

Starting: October 1995

Duration: 2 Years

Overall Objective: The overall objective is to set an understanding of the farmer's attitudes and perceptions towards risk in making agroforestry decisions.

Specific objectives:

- Identify what farmers perceive as yield and risks of various cropping systems with particular attention to agroforestry practices.
- Investigate how farmers cope with risks in general and in agroforestry in particular.
- Establish farmers preference and choice of cropping system based on perceptions and attitude towards risk.
- Determine the relationship between risk attitudes, perception and preferences with socio-economic characteristics of the smallholder farmers.

Sponsor: SUA
Budget: Tshs. 1,560,000/=
 * "To be submitted for PhD thesis"

31.

Title: Socio-Economic Study for Sustainable Development of the Ngorongoro Conservation area

Project Leader: Prof. M.E. Mlambiti

Other Researchers: Dr. N.S. Mdoe, Dr. F.M. Turuka, Mrs A. Temu

Starting: October 1996

Duration: 5 Years

Objectives: Phase I

- To study the socio-economic trends of the Maasai pattern of life
- To identify development needs of the residential pastoralists
- To highlight areas where there are diverging trends in terms of residents economic objectives and conservation objectives.

Phase II

- To formulate a long-term management development strategy for the NCA aimed at reconciling the needs of both conservation and development.
- To prepare an action-oriented plan for followup activities, aimed at ensuring the effective implementation of the development strategy.

Sponsor: NCA
Budget: 538,803 US\$

32.

Title: Evaluation of Agricultural marketing and rural financing constraints in Tanzania: The case of Ulanga District.

Project Leader: Dr. E.R. Mbiha

Other Researchers: Dr. G.C. Ashimogo and Prof. M.E. Mlambiti

Starting: July 1996

Duration: 1½ Year

Overall Objective: To seek ways to strengthen the agricultural and rural financing systems after agricultural marketing liberalisation.

Specific objectives:

- To identify problems facing the current marketing agents in the district

- To assess the performance of currently operating marketing and rural finance agents in the district
- To suggest measures that can improve the efficiency of agricultural marketing and rural finance markets.

Sponsor: NORAD
Budget: Tshs. 5,629,700/= (1997/98)

33.
Title: Impact Assessment of SAP in Agricultural production in Uganda
Project Leader: Dr. A.K. Kashuliza
Other Researchers: Prof. M.E. Mlambiti, Dr. G.C. Ashimogo, Dr. F.M. Turuka and Mr. J.P. Hella
Starting: August 1996
Duration: 1 year
Overall Objective: To analyze the impact of SAP measures and of the thereby affected service environment on agricultural production of small and medium scale farmers.
Sponsor: FAO
Budget: 11,000US\$

34.
Title: Research on Cooperative Development in Tanzania
Project Leader: Dr. A.K. Kashuliza
Other Researchers: Dr. G.C. Ashimogo plus 3 Collaborators at Moshi Cooperative College
Starting: March 1996
Overall Objective: Promotion of farmer participation in cooperative development
Duration: 4 Years
Sponsor: NIRP
Budget: 150,000US\$

35.
Title: Role of informal/semi-informal finance in poverty alleviation in Tanzania
Project Leader: Dr. A.K. Kashuliza
Other Researchers: Dr. F.T. Magayane, Dr. Z.S.K. Mvena and Mr. J.P. Hella
Starting: May, 1996
Duration: 1Year
Overall Objective: Assessing the role of credit in production, consumption and poverty alleviation in rural areas.
Sponsor: REPOA
Budget: 12,000 US\$

36.
Title: Comparative Performance of Agro-Industry firms before and after privatisation
Project Leader: Dr. A.E. Temu

Other Researchers: Prof. J. Due (Univ. of Illinois)
Starting: 1996
Duration: 1 Year
Overall Objective: To assess the performance of newly privatised Agro-Industries
Sponsor: USAID
Budget: 7,000 US\$

37.

Title: Agricultural Comparative Advantage Study For Eastern and Southern Africa
Project Leader: Prof. M.E. Mlambiti
Other Researchers: Dr. F.M. Turuka, Dr. A.E. Temu, Dr. E.R. Mbiha, and Dr. N.S.Y. Mdoe
Starting: December. 1996
Duration: 6 months
Overall Objectives:

- Evaluate the comparative economic advantage (CEA) of alternative agricultural production activities in the various agro-ecological zones, under different technology levels and land tenure systems in Tanzania.
- Analyse the potential impacts of removing existing price and policy distortions on the economic efficiency of alternative uses of the country's resources.
- Identify points of policy, technology, and institutional intervention to enhance economic efficiency and direct agricultural resources to their most productive uses
- Build the Tanzania data component needed for conducting the regional analysis of CEA and trade in agricultural commodities for Southern Africa.

Sponsor: USAID
Budget: 30,000 US\$

38.

Title: Introduction of Forage Choppers in the Livestock Production Systems in Tanzania.
Project Leader: Dr. E.A. Lazaro
Other Researchers: Dr. F.M Turuka, Mr. E. Ngaiza, and Mr. E. Ng'wandu (CARMATEC)
Starting: April, 1996
Duration: 1½ years
Overall Objectives:

- Create awareness of the existence and advantages of the feed chopper among livestock keepers.
- Encourage and promote the use of the feed chopper among livestock keepers in Northern Tanzania.
- Assess the acceptability of feed chopper in the livestock systems in Tanzania.
- To provide necessary recommendations for the improvement and development of the feed chopper and their technologies to meet the livestock keepers needs.

Sponsor: CIP
Budget: 20,000 US\$

39.

Title: Farmers' participation in formulation of Research priorities: The Study of Sorghum Smut Disease in Dodoma Region..

Project Leader: Mr. J.P. Hella

Other Researchers: J. Mbwaga, S. Mdolwa (ARTI ILONGA), Katherin W. (NRI)

Starting: May 1996

Duration: 2 years

Overall Objectives:

- Study Social and Economic factors w.r.t. sorghum smut disease in Tanzania
- Study smallholder farming systems is sourghmu smut
- Develop on farm Research on sourghum smut

Sponsor: NRI

Budget: 10,000 US\$

1.6. Department of Soil Science

40.

Title: Impact of Soil Erosion on Yield

Project Leader: Dr. A.J. Shayo-Ngowi

Other Researchers: Dr. P.W. Mtakwa, Dr. H. Mahoo, Dr. F.B.R. Rwehumbiza and Prof. B. Kayombo

Starting: 1993

Duration: 4 Years

Overall Objective: To study the influence of cover on soil erosion and ultimately on crop yield.

Sponsor: SADC-ELMSCU

Budget: TShs. 88,000,000/=

41.

Title: Sustainable land Development

Project Leader: Dr. A.J. Shayo-Ngowi

Other Researchers: Dr. B.M. Msanya and Mr. D.N. Kimaro (NSS-Tanga)

Starting: 1992 .

Duration: 4 Years

Overall Objective: To study the impact of land clearing methods and tillage practices on soil characteristics and crop yield.

Sponsor: IBSRAM

Budget: 109,000 US\$

42.

Title: Sustainable management of Soil fertility in Tanzania
Project Leader: Dr. G. Msumali
Other Researchers: Dr. E. Semu, Dr. Z.S.K. Mvena, Dr. N.S.Y. Mdoe
Starting: 1994
Duration: 3 Years
Overall Objective: To improve the productivity and sustainability of small-holder cropping systems through the introduction of plant species and improved residue management practices that serve to enhance soil biological processes.
Sponsor: IDRC
Budget: 126,000 US\$

43.

Title: Biological management of Soil fertility for small holder farmers in Africa
Project Leader: Dr. G. Msumali
Other Researchers: Dr. E. Semu, Dr. N.S.Y. Mdoe, Dr. Z.S.K. Mvena
Starting: 1995
Overall Objective: To develop and test methodology for modification and improvement of the indigenous soil fertility practices of small-holder farmers by increasing the efficiency of use of organic and inorganic resources.
Duration: 3 Years
Sponsor: EU
Budget: 84,750 US\$

44.

Title: Soils and resources of Morogoro Rural and Urban Districts.
Project Leader: Dr. B.M. Msanya
Other researchers: Mr. D.N. Kimaro and Ms. E.S. Mgata
Starting: July 1997
Duration: 3 Years
Overall objective: To map the soil and land resources of the Morogoro rural and urban Districts and to evaluate their potential and constraints for various uses.

Specific objectives:

- To characterise the soils and land resources of the area.
- To map the soils and land resources at a scale appropriate for the above objective.
- To generate and provide a data base of land resources in sufficient detail for use by USA researchers, land use planners and farmers in the Districts.
- To show the potential and constraints of the various soils and land resources of the districts as a basis for answering the needs and solving the problems of the farmers.

- To contribute to the national soils and land resources inventory in order to facilitate the national land use planning process.

Sponsor: NORAD
Budget: TShs. 8,017,000 (1997/98)

1.7. Department of Agricultural Education & Extension

45.
Title: Evaluation of Farmer's Groups as a Strategy for Increasing the Impact of Agricultural Extension Programmes in Tanzania.
Project Leader: Dr. A.Z. Mattee
Other Researchers: Mr. T. Lassalle and Dr. A.E. Temu
Starting: July 1996
Duration: 2 Years
Overall Objective: The purpose of the proposed research is to determine the potential of using farmer's groups as an extension strategy for smallholder farmers in Tanzania.

Specific Objectives:

- To describe the major categories of community-based organizations in terms of their objectives, functions, organizational structure, and membership composition.
- To determine the factors which motivate people to join and stay in farmers group
- To describe the nature of participation by group members and the factors which influence the nature and extent of members' participation
- To determine the extent to which the existence of farmers' groups enhances farmers' access to sources of information and other agricultural services.

Sponsor: NORAD
Budget: Tshs. 3,704,000/= (1997/98)

46.
Title: Technology transfer process: The Case of Maize in the Southern Highlands
Project Leader: Dr. A.Z. Mattee
Other Researchers: Dr. V. Rutachokozibwa
Starting: 1994
Duration: 2 Years
Overall Objective: To study and analyse the agricultural technology generation and adoption process with a view to recommend appropriate strategies for bringing about a more rapid agricultural development in Tanzania

Sponsor: IDRC
Budget: 57,545 CAD\$

47.

Title: Indigenous Farming Systems in the Miombo Woodlands. The case of Southern Tanzania.

Project Leader: Dr. A.Z. Mattee

Other Researchers: Several researchers from SUA and Kyoto University.

Starting: July 1994

Duration: 3 Years

Overall Objective: To study the indigenous farming system of the Matengo with on view to identifying the sustainable features which can be adopted in other farming systems in Tanzania.

Sponsor: JICA

Budget: 320,000 US\$

2.0 FACULTY OF FORESTRY

2.1 Department of Forest Biology

48.

Title: Survey, Propagation, Ex-situ Conservation and Nutritional Quality of Endangered Indigenous Forest, Food and Fruit Plant Species in selected Miombo and Montane Forest Ecosystems of Tanzania.

Project Leader: Dr. A.G. Mugasha

Other Researchers: Prof. S.A.O. Chamshama, Mrs. B.K. Ndabikunze, Mr. H.P. Msanga, Mr. C.K. Ruffo and Mr. L. Nshubemuki

Starting: July 1996

Duration: 4 Years

Overall Objective: To guarantee existence and sustainable supply of currently threatened forest, food and fruit species to local communities. Consequently, there will be an improvement in health and income status of rural communities.

Specific objectives:

- Ethnobotanical survey of forest, food and fruit plant species
- Presowing seed treatments to ensure optimum germination capacity
- Investigation of using vegetative propagation techniques
- Development of nursery cultural techniques to ensure production of high quality seedlings
- Testing of field establishment under monoculture plantation and agroforestry conditions
- Evaluation of food/fruit nutritional quality

Sponsor: NORAD

Budget: Tshs. 8,317,600/= (1997/98)

49.

Title: Assessment and Monitoring of Carbon Pools, Phexes and Sequestration Potential in Different Land Use Systems in ecosystems in Tanzania

Project Leader: Dr. S.M.S. Maliondo

Other Researcher: Prof. A.S. Mgeni

Starting: July 1996

Duration: 4 Years

Overall Objective: The overall objective of this project is to quantify the potential for carbon sequestration by different land use systems so as to enable appropriate planning for mitigation options to reduce Green House Gasses (CHG) emissions.

Specific objectives:

- Assess carbon storage pools in different farming/crop management practices including different agroforestry systems;
- Assess carbon storage pools in different forest ecosystems including montane rain forests and Miombo woodlands;
- Compare carbon sequestration potential by the different ecosystems;
- Recommend on possible and most effective mitigation management options to conserve and sequester carbon and other GHG.

Sponsor: NORAD

Budget: Tshs.8,330,000/= (1997/98)

50.

Title: An Evaluation of Wildlife in Tanzania

Project Leader: Dr. S.L. Maganga

Other Researcher: Prof. G.K. Mbassa

Starting: July 1996

Overall Objective: To evaluate the status and potential of promoting wildlife farming in Tanzania

Specific objectives:

- To determine characteristics of the wildlife farms in terms of ownership, land area, source and numbers of animals.
- To asses the establishment and operational costs of the wildlife farms
- To ascertain the social and financial significance of the wildlife farms and
- To identify associated problems of the wildlife farms.

Duration: 1 Year

Sponsor: SUA

Budget: Tshs. 2,500,200/=

51.

Title: Growth and Yield of Second Rotation Stands of *Pinus patula* in Tanzania: Effects of various Silvicultural Treatments.

Project Leader: Dr. S.M.S. Maliondo

Other Researchers: Prof R.E. Malimbwi and Prof. S.A.O. Chamshama

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Overall Objective: The long-term objective of this study is to improve the yield of second and subsequent rotations of *P. patula* plantations in Tanzania.

Specific objectives:

- The growth of 1,2,4,8,10 and 12 year-old second rotation stand of *P. patula* in two plantations in Northern Tanzania;
- Soil fertility in *P. patula* stands of different ages in N. Tanzania;
- The effect of N, P and K added before canopy closure on the growth and foliar nutrient levels of second rotation *P. patula*-stands Northern Tanzania;
- The effect of one annual and one perennial leguminous plants planted before canopy closure on the growth and foliar nutrient levels of second rotation *P. patula* stands in Northern Tanzania.

Starting: July 1996

Duration: 4 Years

Sponsor: NORAD

Budget: Tshs. 8,412,000/= (1997/98)

52.

Title: Improved fallow and relay cropping alternatives for slash-and-burn farming.

Project Leader: Prof. S.A.O. Chamshama

Other Researcher: Dr. A.G. Mugasha

Starting: 1995

Duration: 7 Years

Overall Objectives:

- To determine the growth and Yield of maize under mixed intercropping with *G. Sepium* which is left to occupy the field during the dry season.
- To determine the influence of the leaf manure and litter incorporated in ridges on fertilizer utilized efficiency
- To determine the level of N and P that is needed to optimize maize production with *G. Sepium* green manure.
- To determine the effect of *G. Sepium* green manure on availability
- To determine the production

Sponsor: NORAD

Budget: TShs.11,500,000/= (1997/98)

53.

Title: The effect of fire on the diversity of wood-living beetles in Miombo forests Tanzania.

Project Leader: Dr. S.S. Madoffe

Other Researcher: Prof. Dr. Alf Bakke (NLH)

Starting: June 1994

Duration: 2½ years

Overall Objectives:

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- To investigate on the effect of annual fires on occurrence, diversity, and abundance of wood-living beetles.
- To evaluate on the influence of fire on the ultimate attack of timber logs.
- To evaluate on the economic consequences of timber damage by insects as a result of fire incidence.

Sponsor: NORAD
Budget: TShs. 11,200,000/= (1997/98)

54.

Title: Forest Insect Pests in Agroforestry Systems: Present status and management options.

Project Leader: Dr. S.S. Madoffe
Other researcher: Mr. S. Mwihomeke, TAFORI, Lushoto
Starting: January 1997
Duration: One year, renewable
Overall objective: Determine potential insect pests in AF systems.
Specific objectives:

- Evaluate the extent of spread of the pests in Morogoro, Usambara and Dodoma.
- Determine their natural enemies (local and exotic)
- Propose some control measures

Sponsor: USDA, Forest Service
Budget: US \$ 10,000

2.2. Department of Forest Economics

55.

Title: Diseases of timber trees in Catchment forests of Tanzania: Extent and effect on regeneration and Wood quality

Project Leader: Dr. V.R. Nsolomo
Other Researcher: Prof., Kåre Venn (Norwegian Forestry Research Institute)
Starting: January, 1997
Duration: 5 Years
Overall Objective To build up knowledge on diseases of indigenous trees in Catchment forsts through investigation on their distribution and damage.

Specific objective:

- To make surveys and diagnoses of diseases of indigenous timber trees
- To assess the effect of diseases on growth and natural regeneration capacity of the trees.
- To assess the effect of the diseases on wood quality
- To collect specimen for teaching purposes and for future reference

Sponsor: NORAD
Budget: TShs. 18,782,000/=(1997/98)

56.

Title: Analysis of Sustainable forestry sector development in Tanzania
Project Leader: Prof. A. O'Kting'ati
Other Researchers: Dr. A.R.S. Kaoneka, Dr. G.C. Monela, Mr. Y. Nganga, Prof. B. Solberg, Prof. A. Lunnan
Starting: 1992
Duration: 5 Years
Overall Objective: The general objective of the research project is to provide a framework for socio-economic evaluation and ecological modelling in order to improve the decision basis for sustainable production within the forestry sector in Tanzania.

Specific objectives:

- To develop multi-resource management and landuse plans for selected areas within Nguru and the Usambara Mountains based on combined socio-economic and ecological modelling.
- To analyse the deforestation situation in Tanzania. In particular the following aspects have been taken into account.
 - (i) Estimation of deforestation rates based on aerial photographs on a wide scale
 - (ii) Evaluation of the forces, costs and benefits associated with deforestation
- To analyse the contribution and potential of the forest resource in Tanzania as a CO₂ sink and as a source of CO₂ emission.
- To analyse the forest policy of Tanzania. In particular the following aspects will be examined.
 - (i) The existing policy means
 - (ii) The efficiency and adequacy of the existing policy means
 - (iii) "Suitable" policy means for application in Tanzania context
- To conduct an economic analysis of the costs and benefits and distributional effects of keeping biodiversity in selected forest areas of the Eastern Arc Mountains in Tanzania.

Sponsor: NORAD
Budget: TShs.11,420,000/=(1997/98)

57.

Title: Productivity of forest plantations in north-eastern Tanzania: Environmental, Biological and Socio-economic impact of the taungya farming system.
Project Leader: Dr. A.R.S. Kaoneka
Other Researchers: Dr. A.G. Mugasha, Prof. S.A.O. Chamshama, and Dr. G.A. Migunga
Duration: 5 Years
Overall Objective: To evaluate the socio-economic and biological effect on the sustainability of the taungya farming system on soil fertility, soil erosion and tree and maize

productivity on highly weathered soil with low inherent soil fertility (Eutric Nitosols) in humid West Usambara mountains.

Specific Objectives:

- The specific objectives are to determine the effect of taungya farming system on:
- Nutrient additions and removals when *Pinus patula* plantations are clear felled and logged.
- Nutrient loss through decomposition of litter and leaching during the taungya tenure, i.e. when the land is occupied by crops.
- Dynamics of soil nitrogen and phosphorus which are main nutrients limiting tree and crop growth.
- The amount of nutrients exported through harvesting of maize and beans.
- The amount of soil loss through soil erosion
- Tree productivity, viz, survival and growth in height, root collar diameter, volume and biomass
- Describe the existing taungya farming system and the resource use under this system
- Conduct micro-economic analysis of the taungya system
- Apply linear programming models to determine the optimum allocation of resources
- Discuss the sustainability of the taungya farming systems

Sponsor:

NORAD

Budget:

Tshs. 8,363,000/=(1997/98)

2.3 Department of Forest Mensuration and Management

58.

Title:

Growth and yield studies of mangrove forests in Tanzania

Project Leader:

Prof. R.E. Malimbwi

Other Researchers:

Dr. G.C. Kajembe and Mr. E.J. Luoga

Starting:

1994

Duration:

5 Years

Overall Objective:

To study the growth of mangrove forest and the impact of the social economic aspects on the ecosystems

Specific objectives:

- To conduct research on growth and yield of mangroves growing in Tanzanian coastline in order to determine allowable cut through the development of growth and yield models.
- To determine realistic species and volume composition through studying established recurrent sample plots.
- To carry out phenological studies and provenance testing basis for improved propagation using seeds.

- To study the dependence of coastal local communities on mangroves through social economic surveys in order to improve management decisions.

Sponsor: NORAD
Budget: TShs. 9,000,000/= (1997/98)

59.

Title: Thinning, spacing, volume and wood quality studies of teak (*Tectona grandis* if) in Tanzania.

Project Leader: Prof. R.E. Malimbwi

Other Researchers: Prof. S.A.O. Chamshama, Prof. S. Iddi, Dr. A.G. Mugasha Dr. K.F.S. Hamza, and Mr. F.B.S. Makonda

Starting: July, 1996

Duration: 4 Years

Overall Objective: To observe the growth response of teak to different thinning and spacing regimes, to develop efficient volume estimation system and to assess the wood quality of teak growth at Longuza, Mtibwa and Rondo Forest Projects.

Specific objectives:

- To study the effect of different thinning and spacing regimes for teak on diameter, height, basal area, volume and stem quality.
- To develop efficient volume estimation system of teak
- To determine shrinkage and swelling properties, of teak - Basic density, Strength properties and their variation plus grain angle.

Sponsor: NORAD
Budget: TShs. 4,964,000/= (1997/98)

60.

Title: The importance of the microenvironments in HADO project areas and their conservation.

Project Leader: Prof. A.S.M. Mgeni

Other Researchers: Dr. S.M.S. Maliundo, and Dr. Z.S.K. Mvena

Starting: 1994

Duration: 2 Years

Overall Objective: To document the microenvironments in selected villages inside HADO, periphery HADO and outside HADO

Specific objectives

- To identify to the role of microenviroments to the economy of household
- To monitor utilization of the microenviroments in the areas

Sponsor: NORAD
Budget: Tshs 7,000,000/= (1997/98)

61.

Title: Impacts of some macroeconomic policies and other interventions on household livelihood strategies in the Miombo region.

Project Leader: Dr. G.C. Kajembe
Other Researchers: Dr. G.C. Moncla and Dr. A.R.C. Kaoneka
Starting: June, 1996
Duration: 1½ Years
Overall objective: To evaluate the potential for improving the livelihoods of Miombo Woodland dependent communities in the light of Macro-economic policies and other interventions made by government in their efforts to promote economic development.

Specific objectives:

- To assess the implications of sectoral and extra-sectoral policies on use and management of Miombo woodlands;
- To establish indicators for tracking the effect of these policies on the management of these woodlands;
- To assess the role of these woodlands in the livelihoods of rural communities living close to them or in their proximity and factors shaping those roles;
- To assess the structure, development, role and future of local institutions in the management of woodlands; and
- To propose reform measures for improving management of woodlands.

Sponsor: CIFOR

Budget: 34,000 US \$

2.4 Department of Forest Engineering

62.

Title: The influence of road gradient and alignment on road maintenance costs
Project Leader: Prof. W.S. Abeli
Other Researchers: Prof. R.E.L. Ole Meiludie, Mr. D.T.K. Shemwetta, and Mr. C. Kachwele (TAFORI)
Starting: 1993
Duration: 4 Years
Overall Objectives:

- To determine the optimal road grade which minimizes total maintenance cost
- To compare the extent of road deterioration rate on curves and on target sections of the road.

Sponsor: SUA
Budget: TShs. 2,055,863/=

63.

Title: The use of oxen for skidding logs in plantation forests in Tanzania
Project Leader: Prof. W.S. Abeli
Other Researchers: Prof. R.E. Ole Meiludie, Prof. R. Skaar (NLH) and Dr. G. Migunga

Starting: 1994
Duration: 6 Years
Overall Objectives:

- To encourage farmers to use their animals for skidding logs in order to increase their incomes and create jobs for their family members.
- To train ox-handlers on how to use animals for skidding logs in plantation forests
- To study productivity and cost so as to be able to compare with tractor productivity and cost
- To analyse environmental impact of animal skidding in lieu of tractors
- To find appropriate working methods and terrain conditions which optimize productivity at minimum cost and environmental damages.

Sponsor: NORAD
Budget: TShs. 9,000,000/= (1997/98)

64.

Title: Effect of logging tractors on natural and artificial regeneration in Tanzania's forest plantations.

Project Leader: Dr. G.E. Fuo
Other Researchers: Prof. R.E.L. Ole-Meiludie, Dr. G.A. Migunga, and Prof. R. Skaar (AUN)

Starting: July 1997
Duration: 3 Years
Overall Objective: The long-term objective of this study is to develop reduced-impact timber harvesting management strategies for sustainable forestry in Tanzania so as to guarantee sustainable supply of timber products to forest industries and local communities.

Specific Objectives:

- To investigate the changes in soil physical and chemical characteristics resulting from soil compaction by logging tractors
- To measure soil compaction and disturbance caused by intensities of logging tractors (characterized by the number of passes a tractor makes over an area).
- To measure the effects of soil compaction on seedling survival and growth of Second rotation trees
- To develop a code of timber harvesting practices for Tanzania.

Sponsor: NORAD
Budget: TShs.8,000,000/= (1997/98)

2.5 Department of Wood Utilization

65.

Title: Properties and utilization of some lesser known tree species in Tanzania
Project Leader: Prof. R.C. Ishengoma

28

Other Researchers: Mr. P.R. Gillah, Dr. R.P.C. Temu and Prof. A. O'Ktingati
Starting: 1995
Duration: 5 Years
Overall Objectives:

- In order to foster understanding of different properties of lesser known and lesser utilized species, the project aims at:- Studying anatomical properties, determining physical properties, assessing drying, machining and finishing characteristics assessing durability
- Investigate differences in properties of: different lesser known tree species, trees of same species collected from different locations, trees of same species collected from the same location.

Sponsor: NORAD
Budget: TShs.11,000,000/= (1997/98)

66.

Title: Wood properties of *Grevillea robusta*, *Cedrella odorata* and *Cordia africana* grown in agroforestry in Kilimanjaro, Morogoro and Tanga regions.

Project Leader: Dr. K.F.S. Hamza

Other Researchers: Prof. R.C. Ishengoma, and Mr. F.B.S. Makonda

Starting: July 1997

Duration: 5 Years

Overall objective: To assess wood quality of three important tree species grown in agroforestry (*Grevillea robusta*, *Cedrella odorata* and *Cordia africana*) in the three regions.

Sponsor: NORAD

Budget: TShs.9,000,000/= (1997/98)

67.

Title: Thinning and Wood Studies of Teak Wood (*Tectona grandis Lf*) in Tanzania..

Project Leader: Dr. K.F.S. Hamza

Other Researchers: Prof.S. Iddi, and Mr. F.B.S. Makonda

Starting: July 1996

Duration: 1 Year

Overall objective: To assess strength, physical and anatomical properties of teak wood

Sponsor: NORAD

Budget: TShs .7,500.000/=(1997/98)

3. FACULTY OF VETERINARY MEDICINE

3.1 Department of Veterinary Medicine & Public Health

68.

Title: Epidemiological Studies of Bovine Tuberculosis (BTB) and its Zoonotic Implication in human infections in Tanzania.

Project Leader: Prof. D.M. Kambarage

Other Researchers: Dr. R.R. Kazwala, Dr. M.M.A. Mtambo, Prof. P.M. Msolla, Dr. Y.A. Ipuge

Starting: July, 1997

Duration: 2 Years

Overall Objective: To carry out studies on the status of BTB in pastoral and dairy cattle and its contribution to human infections for purposes of devising effective control strategies of the disease.

Specific Objective:

- To determine the prevalence of BTB in cattle
- To establish the extent of *M. bovis* infection in humans.
- To evaluate further the zoonotic implication of BTB by marching up bovine and human isolates using molecular biology techniques.

Sponsor: NORAD

Budget: Tshs. 8,956,000/= (1997/98)

69.

Title: Parasitic Otitis in cattle

Project Leader: Prof. P.M. Msolla

Other researchers: Prof. A. Kassuku

Starting: 1988

Duration: 9 Years

Overall Objectives:

- To investigate on the epidemiology of the disease
- To study its pathogenesis
- To study its treatment using a variety of locally made preparations.
- To study methods of control of the diseases.

Sponsor: WFP

Budget: TShs. 20,000,000/=

70.

Title: Evaluation of the Prophylactic and Therapeutic Efficacy of a Mixture of Some Locally Available Plant Extracts Against Infectious Bursa Disease (IBD) and Newcastle Disease (ND) in the Domestic Fowl.

Project Leader Dr. M.M.A. Mtambo
Other Researchers: Mrs. E.J. Mushi, Prof. L.D.B. Kinabo, Prof. Maeda-Machang'u, Dr. G.L.M. Mwamengele and Dr. J. Nyange
Starting: 1996
Duration: 1 Year
Overall objective: To promote poultry production through disease control by indigenous medicinal plants.
Specific objectives:

- To determine the prophylactic efficacy of the preparation against IBD;
- To determine the prophylactic efficacy of the preparation against ND;
- To determine the therapeutic efficacy against IBD;
- To determine the therapeutic efficacy against ND.

Sponsor: SUA
Budget: TShs 1,072,600/=

3.2. Department of Veterinary Anatomy

71.

Title: Analysis of Blood Chemistry of Tanzanian Wild Ungulates in Healthy and Diseased
Project Leader: Prof. G. Mbassa
Other Researchers: Dr. A.E. Pereka, Prof. J.A. Matovelo and Prof. M.M. Mgasa
Starting: July 1996
Duration: 2 Years
Overall Objective: Improvement of domestic and wild animal health through identification, recovery and promotion of biological defensive components.
Specific objectives:

- To determine quantitatively the different serum proteins in wild animals of Tanzania
- To determine the level of haematocrit, red and white blood cells and haemoglobin in healthy and sick animals.

Sponsor: NORAD
Budget: Tshs.7,472,000/= (1997/98)

72.

Title: Cytological and Immunohistochemical Studies in *Theileria parva* infections in Ankole Zebu cattle.
Project Leader: Prof. G. Mbassa
Other Researchers: Dr. O.B. Balemba, Prof. P.S. Gwakisa
Starting: 1993

Duration: 4 Years

Overall Objectives:

- To test theileriosis resistance in Ankole Zebu cattle
- To type of chromosomes of Ankole Zebu and *Bos taurus* cattle
- To develop early diagnosis of East Coast fever in cattle

Sponsor: SUA

Budget: Tshs. 1,764,059/=

73.

Title: The Cytology of the Bronchoalveolar Lavage (BAL) Fluid in Clinically normal and in goats with Respiratory Diseases.

Project Leader: Dr. C.K.B. Kahwa

Other Researchers: Dr. M.M.A. Mtambo

Starting: 1995

Duration: 2 Years

Overall Objectives:

- To establish the normal BAL Cytology of the distal airways in the neonatal and adult goats.
- To assess changes in BAL cytology of goats with respiratory diseases
- To evaluate the use of BAL Cytology as a diagnostic aid in respiratory diseases of goat

Sponsor: SUA

Budget: TShs. 1,174,858/=

3.3 Department of Veterinary Pathology

74.

Title: Investigation on the vascular permeability changes in the pathogenesis of pulmonary edema in East Coast fever.

Project Leader: Prof. J.A. Matovelo

Other Researchers: Dr. G.L.M. Mwamengele, and Prof. G.K. Mbassa

Starting: July 1996

Duration: 1½ Year

Overall Objective: To study the pathogenesis of pulmonary edema caused by East Coast fever in cattle for purposes of rationalizing chemotherapeutic strategies currently in use.

Specific objectives:

- To investigate changes in permeability status of pulmonary capillaries in pulmonary edema caused by East Coast fever (ECF)
- To verify the pathogenesis of the pulmonary edema in bovine ECF.
- To deduce the rationale of diuretic therapy against respiratory distress in bovine ECF.

Sponsor: NORAD
Budget: Tshs. 5,573,700/= (1997/98)

3.4. Department of Vet. Microbiology & Parasitology

75.

Title: Gender Perspectives and Local Knowledge in Animal Health and Livestock Production Systems.

Project Leader: Prof. A.D. Maeda-Machang'u

Other Researchers: Dr. S. Mutayoba, Dr. G. Laswai, Mrs. R. Kurwijila and Prof. A.E. Kimambo

Starting: July 1996

Duration: 2 Years

Overall Objective: Identifying means of increasing beneficial exchange between local community, animal health care providers, the formal animal health and production practitioners and the national and international agencies active in this field. Also to assess women's and men's input into the articulation of local livestock health and production system policies, management, extension services and other development programmes.

Specific objectives:

- To assess and analyze the indigenous knowledge of women and men in the health care and management of animals.
- To document indigenous methods of tackling animal health problems and diseases
- To identify the locally perceived constraints and demand put upon women in the management of their livestock
- To identify areas where local needs can be improved with help from different development agencies.

Sponsor: NORAD

Budget: Tshs. 7,812,000/= (1997/98)

76.

Title: An Evaluation of Effects of Tick Infestation on Immunological Mechanisms of Host Resistance and Histopathological changes in Cattle

Project Leader: Prof. P. Gwakisa

Other Researchers: Prof. R.S. Silayo and Dr. R.M. Maselle

Starting: July 1996

Duration: 1½ Year

Overall Objective: The broad objective of the proposed project is to develop criteria for identification of cattle with natural resistance to ticks.

Specific objectives:

- To make a comparative survey of tick infestation on *Bos indicus* (zebu) and *Bos taurus* (exotic) cattle breeds at selected field sites.

- To assess immunological and histopathological changes (delayed skin hypersensitivity response, antibody response against tick antigens, serum complement activity, mast cells and eosinophils) in cattle hosts under tick challenges.
- To evaluate the variation of tick infestation (physical tick counts) on cattle in relation to host immunological responses and histopathological changes.

Sponsor: NORAD
Budget: Tshs. 4,154,600/= (1997/98)

77.

Title: Seasonal dynamics of rodent flea ectoparasites in Morogoro.
Project Leader: Dr. R. Makundi
Other Researcher: None
Starting: December 1996
Duration: 1 Year
Overall Objective: To study the population ecology of flea ectoparasites of rodents with a view to improve public health in Tanzania.

Specific objectives:

- To establish the flea species associated with wild rodents in Morogoro
- To assess the density fluctuations of wild rodent fleas
- To establish the existence of seasonal changes in rodent flea density
- To determine possible associations between the host (rodent) density and ectoparasite population dynamics

Sponsor: SUA
Budget: Tshs. 1,699,400/=

78.

Title: Prevalence of *Murine Typhus* (Syn. Endemic Typhus) in selected Areas of Tanzania.
Project Leader: Dr. R.S. Machang'u
Other Researchers: Prof. B.S. Kilonzo
Starting: July 1996
Duration: 2½ Years
Overall Objective: To improve public health in Tanzania
Specific objective: To establish the prevalence of *murine typhus* by demonstrating specific rickettsial antibodies in rodents from areas with high rat/flea infestations.

Sponsor: NORAD
Budget: Tshs. 4,228,700/= (1997/98)

79.

Title: Improving the health and productivity of the rural chicken in Africa
Project Leader: Prof. U.M. Minga
Other Researchers: Dr. A. Katule and Dr. M. Mtambo

Starting: September 1996
Duration: 2 Years
Sponsor: DANIDA
Overall Objectives:

- To assess the productivity indices of the rural chicken
- To do epidemiological studies of rural chicken diseases
- To identify rural chicken ecotypes
- To do fowl typhoid molecular epidemiological studies

Budget: 789,270 DKK

80.

Title: Epidemiology of bovine schistosomiasis and fascioliasis in Tanzania
Project Leader: Prof. A.A. Kassuku
Other Researcher: Dr. A.E. Makundi
Starting: 1991
Duration: 7 Years
Overall Objectives:

- To determine the effect of challenge infection in calves treated for primary schistosomiasis under experimental conditions.
- To confirm the parasite and intermediate snail host spectra for bovine schistosomiasis present at Lulanzi village in Iringa district.

Sponsor: DANIDA
Budget: 900,000 DKK

81.

Title: Epidemiology of bovine parasitic otitis: A cohort study in four cattle farms in Morogoro District.
Project Leader: Prof. A.A. Kassuku
Other Researchers: Prof. P. Msolla, and Prof. W. Semugurka
Starting: 1994
Duration: 3 Years
Overall Objectives:

- To determine breed, age and sex susceptibility of cattle to Bovine parasitic otitis using retrospective and prospective epidemiological studies
- To determine the incidence of Bovine Parasitic Otitis in ranches under different Management Systems and try to determine the causal factors.

Sponsor: IFS
Budget: 55,000 SEK

82.

Title: Tick resistance and DNA variation among Zebu cattle
Project Leader: Prof. P.S. Gwakisa

Other Researchers: ILRI (Kenya) and CSIRO (Australia)
Starting: 1995/96
Overall Objective: To reveal the genetic basis of resistance to ticks East African Zebu cattle.
Duration: 2 Years
Sponsor: ACIAR
Budget: 12,000 US \$

83.

Title: Development of resistance to ticks in local Zebu
Project Leader: Prof. P.S. Gwakisa
Other Researchers: None
Starting: 1996
Duration: 1½ Years
Overall Objectives:

- To investigate the level of resistance to ticks in different Zebu types
- To study influence/effect of tick infestation on immunity and calf development.

Sponsor: IFS
Budget: 12,000 US \$

84.

Title: Epidemiology and control of leptospirosis
Project Leader: Dr. R.S. Machang'u
Other Researchers: None
Starting: Jan. 1994
Duration: 3 Years
Overall Objectives:

- To investigate the prevalence of leptospirosis in rodents livestock and humans
- To isolate and characterize prevalent leptospires
- Establish epidemiologic patterns of leptospirosis and
- Formulate control mechanisms.

Sponsor: EU/SACCAR/GTZ
Budget: 40,000 US \$

85.

Title: Efficacy of trypanocidal drug treatment
Project Leader: Prof. R.S. Silayo
Other Researcher: Dr. E.N. Kimbita
Starting: 1996
Duration: 2 Years
Overall Objectives:

- To confirm observed superior efficacy of two-dose treatment against drug resistant *Trypanosoma congolense* in mice
- To determine the efficacy of two-dose trypanocidal drug treatment against drug resistant *Trypanosoma congolense* in goats and cattle.

Sponsor: COSTECH
Budget: TShs. 1,923,000/=

86.

Title: Epidemiology and Control of Contagious Bovine Pleuropneumonia (CBPP) in Tanzania

Project Leader: Prof. U.M. Minga

Other Researchers: Dr.R.R. Kazwala, Prof. J.A. Matovelo and Prof. P.S. Gwakisa

Starting: July 1997

Duration: 2 Years

Overall objective: To study the Epidemiology and control of Contagious Bovine Pleuropneumonia in selected regions in Tanzania and recommend appropriate and effective control methods.

Specific objectives:

- To determine factors which have led to the spread of CBPP outbreaks in Tanzania
- To determine the prevalence of Contagious Pleuropneumonia in Morogoro and Iringa regions.
- To formulate appropriate and effective control methods for CBPP and recommend the same to farmers and Government.
- To develop a sensitive and specific diagnostic method for CBPP and other Mycoplasma diseases.
- To evaluate the efficacy of CBPP vaccine (s) currently in use.

Sponsor: NORAD
Budget: TShs. 8,956,000/= (1997/98)

3.6. Department of Veterinary Physiology, Biochemistry, Pharmacology & Toxicology

87.

Title: Studies to Develop Home based Formulations from Neem (*Azadirachta indica*) Tree Extracts for use Against Animal Parasites and Pests.

Project Leader: Prof. A.J. Ngomuo,

Other Researchers: Prof. B.S. Kilonzo, Prof. R.D. Mosha and Prof. A.A. Kassuku

Start: July 1996

Duration: 2 Years

Overall Objective: To develop neem (*Azadirachta indica*) products as insecticides/pesticide for Livestock production.

Specific objectives:

- To prepare dosage forms/formulations of extracts from seeds, leaves and bark of neem tree for use against ectoparasites and pests of livestock.
- To test the efficacy of those formulations against ectoparasites particularly ticks and fleas of cattle, sheep and goats in order that the cheapest and most effective formulation may be recommended to farmers for local or homebased production and use against those livestock pests.
- To sensitize and make livestock keepers be aware of the different agricultural uses of neem in order to cut down the use of the synthetic insecticides and pesticides which are hazardous and associated with ecological/environmental problems.
- To study the effect of the by-product "neem seed cake", obtained after extraction of oil from the seeds on (i) growth and production and (ii) establishment of endoparasites (nematodes) in goats.

Sponsor:

NORAD

Budget:

Tshs. 4,917,000/= (1997/98)

88.

Title:

Biomolecular Approach to the Epidemiology, Pathogenesis and Chemotherapy of African Animal Trypanosomiasis in Morogoro, Tanzania.

Project Leader:

Prof. B.M. Mutayoba

Other Researchers:

Dr. R.M. Maselle, Prof. R.S. Silayo and Dr. E.N. Kimbita

Starting:

July, 1996

Duration:

2 Years

Overall Objective:

To determine the prevalence and pathogenesis of different trypanosome species and the efficacy of trypanocidal drug treatment in large and small ruminants in Morogoro, Tanzania.

Specific objectives:

To identify prevalent species of pathogenic animal trypanosomes in Morogoro region by polymerase chain reaction (PCR) amplification of repetitive deoxyribonucleic acid (DNA) sequence in respective trypanosome species.

- To determine the prevalence of trypanosome infections in cattle, sheep and goats in Morogoro region.
- To investigate the infertility problems associated with the observed trypanosome infections in cattle, sheep and goats in Morogoro region.
- To determine the trypanosome-induced acute phase response caused by different species of trypanosomes isolated in Morogoro region in relation to observed reproductive anomalies in ruminants.
- To determine prevalence of trypanocidal drug resistance in selected farms in Morogoro Region and to compare the efficacy of single-dose and two-dose trypanocidal drug treatment against African animal trypanosomiasis under field conditions.

Sponsor:

NORAD

Budget:

Tshs. 8,002,700/= (1997/98)

89.

Title:

Ruminant nutritional physiology.

38

Project Leader: Dr. A.E. Percka
Other Researchers: T.Larsen, H.Jensen, J. (Denmark), Prof. Mtenga, L.A. and Prof. A.E. Kimambo
Starting: October, 1994
Duration: 3 Years
Overall Objectives:

- Evaluation of mineral content of forages, soils, and animal tissues to provide a basis for development of nutritional correct but cheaper mineral supplement.
- Further elucidation on the effect of mineral supplementation on energy and protein utilization in grazing ruminants.

Sponsor: DANIDA
Budget: 43, 111 DKK

3.6 Department of Surgery Reproduction and Obstetrics

90.

Title: Development of feed supplementation strategies for improving the productivity of smallholder, cut-and-carry dairying with cattle in urban and peri-urban Morogoro, Tanzania.

Project Leader: Dr. R. Nkya
Other Researchers: Dr. A.A. Aboud, and Prof. B.M. Kessy
Starting: December 1993
Duration: 5 Years
Overall Objectives:

- Identification of the major constraints facing dairy farmers
- Improvement of milk production and reproductive efficiency of smallholder dairy cattle through nutritional intervention.

Sponsor: IAEA
Budget: 60,000 US\$

91.

Title: Supplementation of low quality forage diets of dairy cows with urea molasses blocks.

Project Leader: Dr. R. Nkya
Other Researchers: Dr. A.A. Aboud, Prof. B.M. Kessy and Dr. M. Shem
Starting: June 1997
Duration: 6 months
Overall Objective:

- Formulation and preparation of nitrogen molasses mineral blocks (NMMBs)
- Monitoring the effect of block supplementation during the dry season on the productivity of milk producing cattle kept on smallholder farms.

- Demonstrate the use and impact of NMMBs supplementation to smallholder farmers in Morogoro.

Sponsor: ECEP, (Canada)
Budget: 18,000 CAD\$

92.

Title: Assessment of occurrence, prevalence and economic losses associated with reproductive disorders in zero-grazed, smallholder dairy cattle farms located in rural areas of Tanzania.

Project Leader: Dr. N.L. Kanuya

Other Researchers: Prof. B.M Kessy, Prof. S.B. Bittegeko, Dr. N.S.Y. Mdoe and Dr. A.A. Aboud

Starting: July, 1997

Duration: 1 Year

Overall Objective: The overall objective is to increase the number of calves and milk yield per cow's lifetime and subsequently income of farmers with zero-grazed, smallholder dairy farms.

Specific Objectives:

- To determine the occurrence of reproductive disorders in zero-grazed, smallholder dairy farms in selected villages.
- To determine factors influencing the occurrence of reproductive disorders in small holder dairy farms.
- To examine if a relationship exists between pre- and postpartum body condition score and occurrence of reproductive disorders in dairy cattle kept in smallholder farms,
- To assess the economic losses associated with the reproductive disorders and
- To carry out practical intervention steps and evaluate their impact on occurrence of reproductive disorders in the same smallholder dairy farms.

Sponsor: NORAD

Budget: Tshs. 8,155,000/= (1997/98)

4. DEVELOPMENT STUDIES INSTITUTE (DSI)

93.

Title: Rural Development in Tanzania: Putting the Poor first . A Case for Poverty Alleviation Efforts

Project Leader: Dr. B.J. Kasimila

Other Researchers: Dr. I.H. Kawa, Dr. V.L. Kyulule, Dr. V.B. Kihyo and Mr. E.K. Mduma

Starting: July 1996

Duration: 2 Years

Overall Objectives:

- To facilitate rural development on a sustainable basis for the rural people, with emphasis on the have-nots (especially Women and Children).

- To develop a methodology for participatory rural development planning, and
- To upgrade the research and training capacity of the Development Studies Institute
- To develop a systematic Information, Education and Communication (IEC) campaign strategy against sex preferences in families to reduce current high rate of fertility in rural communities.

Specific objectives:

- To identify specific needs and concerns of the rural poor (the have-nots), especially those of women and children, which will enable them to improve their livelihoods.
- To undertake survey and project design for the establishment of an approach of participatory rural development planning and for the establishment of baseline data to be used in subsequent monitoring and evaluation.
- To identify, appraise and prioritise rural development projects on a basis of popular participatory approach, bearing in mind that there may be a major constraint on capital inputs, so that the focus must be on low cost and participatory (self-help) improvement schemes and/or projects which are most likely to be widely replaceable elsewhere in the country.
- To identify the level of sex preference in childbearing as a co-determinant of expanded family size in a typical matrilineal Luguru community of Morogoro Rural District.
- To appraise the effect of differential access to and control of productive resources by gender, gender division of labour, gender division of income and intrahousehold gender decision making process on women's disadvantaged position in the development process.

Sponsor: NORAD
Budget: Tshs. 5,087,430/= (1997/98)

94.

Title: Gender differences in local knowledge on soil types, their use and limitations among some Mbulu villages.

Project Leader: Dr.P.K.G.M. Ndyetabula

Other Researchers: Mrs. F. Makundi, and Dr. B.M. Msanya

Starting: July 1997

Duration: 2 Years

Overall Objective: The general objective of the study is to seek ways of improving communication of natural resource information between professionals and land users for better management of the resources and environment.

Specific Objectives:

- To identify the major soil types as classified by local people in the study area and correlate them with those identified by soil professionals;
- To establish any differences and similarities in perceptions of soil types, their uses and limitations among men and women;
- To determine the extent and patterns of use of local knowledge on soils (among men and women) in making day-to-day land use decisions and reasons for the observed patterns;

- To recommend improvements in procedures used by professionals in gathering resource information, land use planning and recommending management options.

Sponsor: NORAD
Budget: TShs.8,876,000/= (1997/98)

5. INSTITUTE OF CONTINUING EDUCATION (ICE)

95.

Title: Strengthening Farmers Participation in Village Development Activities: The Role of the National Agricultural and Livestock Development Training Institutions in Tanzania.

Project Leader: Dr. R.M. Wambura,

Other Researcher: Dr. A.C. Isinika.

Starting: July, 1996

Duration: 2 Years

Overall Objective: To help the Tanzanian small-scale farmers become efficient and effective in availing themselves of the services of agencies and institutions in the development of viable village enterprises.

Specific objectives:

- To examine the extent to which the National Agricultural and Livestock Training Institutions in Tanzania serve as a facility for training students and change agents in extension and related fields.
- To assess the extent to which farmers participate in planning their development activities through identification of problems, prioritisation, selection and design of possible solutions to problems.
- To develop strategies and approaches and generate models that could be useful for agricultural training institutions, development agencies, policy-makers and extension workers in accelerating rural development efforts.

Sponsor: NORAD
Budget: Tshs. 5,696,800/= (1997/98)

96.

Title: Management and utilization of animal manure as a resource for crop production: The case of Morogoro, Dodoma, Shinyanga and Kilimanjaro regions.

Project Leader: Dr. G.G. Kimbi

Other Researchers: Prof. J.M.R. Semoka and Dr. R.M. Wambura

Starting: July, 1996

Duration: 1 Year

Overall objective: To establish and analyze factors limiting the use of animal manure for crop production and to evaluate manure management techniques in different grazing systems.

Specific objectives:

- To estimate the amount of animal manure currently available and amount generated/produced annually
- To establish the quality (available NPK) of the animal manure
- To establish the extent of animal manure utilization for crop production
- To identify and analyze factors limiting the use of animal manure for crop production
- To assess the different manure storage and handling techniques
- To identify other sources of organic materials used as nutrient sources for crops
- To establish the current level of chemical fertilizers use.

Sponsor: NORAD
Budget: TShs.8,868,100/= (1997/98)

6. BASIC SCIENCES UNIT

97.

Title: Factors Affecting Student Academic Achievement in Secondary Schools in Tanzania

Project Leader: Mr. S.T.A. Mafu

Researchers: Mr. G.C. Mattao, Dr. M.R.S. Mlozi

Starting: July 1997

Duration: 3 Years

Overall Objective: The long-term objective of this study is to improve students' mastery of academic skills and knowledge and their communicative competence in English.

Specific Objectives: To determine:

- The extent of use of code-switching and code mixing in teaching
- Whether students' intellectual development suffers because of use of code-switching and code-mixing in teaching and discussions
- Means and ways of reinforcing acquisition and mastery of knowledge e.g. specific subject clubs/associations which complement classroom teaching
- The extent of exposure of students to laboratory practical skills
- The availability of teaching/learning materials
- The availability of textbooks and other reference materials in the library
- The existence and use of school library
- The academic levels of the teaching staff and their background training
- The extent and frequency of in-service training and refresher courses
- The source of funding of the selected schools

Sponsor: NORAD
Budget: TShs. 8,119,000/= (1997/98)

7. SOKOINE NATIONAL AGRICULTURAL LIBRARY (SNAL)

98.

Title: An Investigation of the Volume and Documentation of Agricultural Research Information in Tanzania.

Project Leader: Mrs. A.M. Chaila

Other Researcher: Mrs. D.S. Matovelo

Starting: July 1996

Duration: 2 Years

Overall Objectives:

- Conduct a study on the generation, documentation and dissemination of agricultural research information in Tanzania.
- Create an inventory of agricultural research information resources
- Assessment of the Information services offered in the various agricultural institutions as well as information available to end users.

Specific objectives:

- Compile a comprehensive inventory of past and present agricultural research development projects initially for the period 1980-1990.
- Determine capabilities and potentials of a national agricultural information system and possibilities of establishing an automated information storage and retrieval system.
- Lay ground for network activities of the national agricultural information system, at national and international levels.

Sponsor: NORAD

Budget: Tshs.8,043,200/= (1997/98)

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EXECUTIVE SUMMARY

1. The report covers collaborative research activities of the Integrated Agro-ecological Research of the Miombo Woodlands in Southern Tanzania conducted by Sokoine University of Agriculture, and The Centre for African Area Studies (CAAS), Kyoto University, between May 1994 and April, 1997. Financial and technical support was obtained from Japan International Cooperation Agency (JICA). The study focussed on three major themes, namely, social economic, natural resources and technological studies with emphasis on indigenous agricultural systems.
2. The Miombo Woodland Vegetation covers about three quarters of the potential agricultural land in Southern Tanzania, but the area is currently undergoing rapid degradation because of extensive clearing of the natural vegetation. Soil erosion and generally irreversible loss of soil fertility are the major problems in the area.
3. Steady increases in human population has necessitated rapid changes in the indigenous farming systems (*Ngolo*) to include more land into crop production through bush burning and the use of less adaptable methods of cultivation such as flat and ridges with artificial agricultural inputs - fertilizers, herbicides and pesticides, the effects of which have proven disastrous.
4. The only viable method of revitalizing these lands, however, would be to revisit and evaluate the strengths and weaknesses of the indigenous farming systems. This knowledge is yet to be fully tapped to expedite development in many rural areas in Tanzania. Familiarity with local knowledge can help researchers and extension workers to understand and communicate with local people, thereby enhancing the possibility of participatory approaches to sustainable development.
5. The goal of the project was to promote productivity and sustainability of indigenous agricultural systems in Mbinga district as a pilot areas for developing technologies applicable and adaptable to the rest of the Miombo Woodlands of Tanzania. Scientists from SUA and Japan collaborated closely in this venture. Specifically, the project described the Matengo indigenous system; evaluated sustainable features of the system; determined the overlying socio-cultural and economic characteristics of the

system; and developed some appropriate technologies and methods to be adopted in Mbinga district as well as in other similar areas.

6. In order to realize the goal and specific objectives of the project a well coordinated multi-disciplinary research approach was adopted during the course of implementation of project activities. Scientists, extensions workers and farmers in the district were coordinated in a participatory oriented research in Mbinga aimed at discovering and improving the sustainable features of the *ngolo* farming system.

7. The concept of 'ntambo' was used to focus the attention of the various scientists on a common unit of analysis. In analysing the 'ntambo', techniques like participatory rural appraisal (PRA), personal interviews, physical measurements of land, and crop productivity among others were used. Maps of the 'ntambo' were also produced. In addition, basic experiments were conducted at different sites in Mbinga district relating to natural resource management and its effect on agricultural productivity.

8. The sites were selected in accordance with the geographical setting and topography of Mbinga district, the details of which are found in the report.

9. Whereas the Matengo highlands could have been covered by permanent natural vegetation such as miombo trees, frequent slash-and-burn farming practices have left the mountains and hills virtually naked, particularly in the old villages. Currently, the dominant vegetation include *Imperata cylindrica*, *Tegetes minuta*, *Hyparrhenia* spp., *Coryza*, spp. and ferns.

10. The common crops are maize, beans coffee, bananas, wheat, cassava, tobacco and vegetables. They are planted at different times in the year, depending on the growing duration of cultivars and rainfall distribution/duration. Agroforestry is commonly practiced in the Matengo highlands where coffee and tree (*Gravillea* spp.) are interplanted. The natural miombo trees (*Brachystegia* spp.) are still dominant in the southern rolling hills (Lupilo, Kitanda, etc) where human occupation is still low when compared to the central Matengo highlands area.

11. The geology of the central Matengo highlands includes, the pre-Cambrian Basement Complex (PCBC) which underlies this region. It consists of either granitic rocks with horn blende and/or biotite, or metamorphic rocks mostly gneisses but also schists and quartzites. Most of the study area were underlain by gneissic rocks. Studies have shown that most soils of Mbinga district bear a strong relationship to land forms. This made it easy to map the spatial distribution of soils in the sample villages. In all, soil maps of Litembo, Mahenge, Kitanda and Lupilo villages were drawn during the course of the project.

12. There is a general consensus that the soils of the central Matengo highlands and in the southern rolling hills area have poor supply of the major nutrients, which calls for attention to the ever declining soil fertility with time due to continuous cultivation without adequate fertilization.

13. The soils of the rolling hills area are more fertile than those of the mountain areas on the basis of acidity and base status, available phosphorus, exchangeable K and clay mineralogy. Crop yields are similarly different, being higher in the rolling hills area e.g. Kitanda, than in the mountains, e.g. Kindimba.

14. The general complaint of farmers in the central Matengo highlands is about deterioration of soil fertility and shortage of land. People are therefore migrating from these areas to the more fertile, sparsely populated areas in the southern rolling hills area.

15. The multi-functional nature of the *ngolo* cultivation system, i.e., maintenance of soil fertility, erosion control and provision of underground drainage system makes this system environmentally sound and productively sustainable.

16. There are problems associated with the *ngolo* farming system in the sense that they are labour intensive when compared with other compatible land use preparation methods, i.e. ridge and bench terraces. The majority of farmers (75%) however, practice *ngolo* cultivation in the central Matengo highlands and in the southern rolling hills areas. *Ngolo* cultivation is not found along the shores of lake Nyasa. The *ngolo* farming system can be classified as a grassland fallow farming system, although the cropping is usually repeated for many years without fallow. It is also combined with a two-crop-rotation

system in which beans are planted in the late rainy season of the first year and maize in the following.

17. *Ngolo* making is a special art of using weeds and crop residues to build-up soil fertility and conserving moisture in steep slopes. *Ngolo* forming and planting operations are carried out simultaneously, usually by women. In forming up the *ngolo*, labour is distributed in various sub-operations: covering shoots with soil (33.9%), sowing beans (15.5%); and, covering beans with soil (50.6%). The last operation demands high skills and ingenuity.

18. An informal discussion with farmers in Mbinga district revealed that the soils are locally distinguished into 5 groups: 1) Luhumbi lujilo, 2) Luhumbi lukeli, 3) Ukitupe, 4) Sangi, and 5) Luhungula. These soils are found in the cultivated fields. In *ngolo*, soil fertility is maintained through incorporation of organic residues as a nutrient source, evasion from nitrogen starvation through wrapping up of plant residues with soil from the fertile top layer (former ridge), and earthing up effects which bring soil nutrients close to the crop.

19. In this system, also, soil conservation is achieved through interception of runoff water and soil trapping, soil mulching and vegetation cover in vulnerable stage i.e. *ngolo* are formed after the heavy rains in short-fallowed area. Soil water is controlled through effects of the buried plant residues which regulate water loss from the soil. Both down-slope flow and infiltration rates are regulated by the buried plant residues. Soil forming is one of the most significant characteristics of *ngolo* cultivation. This is achieved through conversion of subsoil to top soil and restoration of exhausted soils-through biennial rotations.

20. During early slash-and-burn stage of land cultivation, crops such as finger millet benefitted from the effects of ash on soil physical characteristics and nutritive quality. Depletion of soil fertility in the slash-and-burn fields leads to construction of *ngolo* to restore and sustain soil fertility. For that matter, *ngolo* are also found in relatively flat fields. In a burnt plot, increased yield of finger millet results from $\text{NH}_4\text{-N}$ content (October) and P_2O_5 (March). These factors are considered useful in finger millet production.

21. Comparative studies carried out for three years at Tukuzi village have shown that *ngolo* is more effective in controlling soil erosion on steep slopes than any other cultivation system in the central Matengo highlands. The amount of soil loss recorded from any one cultivation system is a function of the gradient of the slope and the extent of vegetation cover.

22. Fertility analyses from sediments from *ngolo* and other plots revealed greater nutrient concentration in the former cultivation method. The nutrients measured were available P, total N, organic carbon(C) and exchangeable bases. The pH was also higher in sediments from *ngolo* possibly because of high contents of Ca. Run-off rates are also greatly reduced in *ngolo* when compared to either ridge or bare plots.

23. Many food and cash crops are grown by farmers in Mbinga district. The proportionate allocation of each crop in the household farm area is accordingly, cereals (49.6%), pulses/legumes (14%), root crops (18%), coffee (15.4%) and other (3%). With the exception of coffee, fruit trees, bananas and vegetables, all other crops are grown on *ngolo*.

24. High price of seeds coupled with scarcity of improved seed during the rainy season necessitate sowing of local types of seeds by most farmers (82%). Improved seeds also require usage of other inputs such as fertilizers and pesticides in order to maximize production. These inputs are expensive and unavailable in most growing seasons.

25. Yield assessment on *ngolo* and other alternative systems of cultivation have revealed that crops raised on *ngolo* were always more productive than those raised on alternative seedbeds. These assessments were conducted at Tukuzi, Mahenge, Kitanda and Kindimba villages.

26. Insect pests and diseases cause considerable crop yield losses during the growing season. In 1995/96 through 1996/97 season, a severe outbreak of the southern maize leaf blight caused losses of up to 50-60% of the maize crop.

27. In performing such an organized system of cultivation the Matengo people have had a well organized political system to get the society intact and disciplined. History of the Matengo shows that the tribal organization was composed of patrilineal groups of equivalent status and of diverse origins. The village, with its headman and elders was an important unit of socio-political organization.

28. The Matengo system of farming, *ngolo*, has made them distinct from other ethnic groups in the southern highlands of Tanzania and almost the only people practicing a unique indigenous farming system in the mountainous areas, capable of controlling soil erosion, maintaining soil fertility and increasing yields of crops produced on very steep slopes.

29. With the introduction of cash crops, the entire social structure of the Matengo started to disintegrate, the communal system of land ownership became undermined, and the individual got power over the disposition of land. Land disputes significantly increased. Hiring of temporary labour force became necessary, especially with those who owned more than average size coffee farms.

30. Studies have revealed that village and sub-village (location) establishment were through 'ntambo' system or socio-graphic unit. 'Ntambo' elicited a system of land ownership among the Matengo people. 'Ntambo' provides sufficient land for extended families. These 'ntambos' later developed into 'musi'- a settlement for many families. These strengthened exploitation of the 'ntambo'.

31. In opening a new village, the criteria have been to fulfil all or some of the following: 1) good soil fertility, 2) expansibility, 3) water availability (rain), 4) topography of farmland, and 5) availability of grazing area. These sites were also conducive for missionary settlements e.g. Kindimba and Litembo villages. Formal education among the Matengo began with missionary intrusions.

32. Comparison of life between the Matengo highlands (Kindimba) and the southern rolling hills (Kitanda) shows that the Matengo of Kitanda are more relaxed than those of Kindimba, a factor probably associated with population pressure, age groups, and availability of food and drinks. The social system of the Matengo is

characterized by the existence of old and new villages.

33. It is believed that land use changes and environment in Mbinga are closely related with changes in land ownership based on 'ntambo' management. Characterization of 'ntambo' will be a key to understand the whole development process of the Matengo society and the environment.

34. 'Ntambo' studies have revealed large variations within a village depending on time of exploitation, size, population and population density. These differences dictate the extent of development of the occupants of a 'ntambo.'

35. In terms of household sizes, these do not differ significantly between the lowland (6.3) and highland (6.8) areas in Mbinga district. The labour force, however, is higher in the rolling hills (2.1) than in the central Matengo highlands (1.6).

36. Most of the household heads in Mbinga district are men (89%) with an age mean of 40 years. Most of the household members are educated (83%).

37. Regarding crop management, farmers are aware of the importance of early planting of crops, particularly maize, to guard against disease infestation, particularly the maize leaf blight and streaks. Other crop husbandry practices were indicated as essential for high crop yields in both lowland and highland areas.

38. In Mbinga district, farmers generally have no access to credit facilities, particularly for purchasing inputs for food crops. Sometimes credit is available through private buyers of cash crops such as coffee. Part of the credit is diverged to food crops, thus resulting in low yields in the commercial crop. Payment of the credit becomes difficult or impossible at the end of season.

39. Mbinga farmers face a critical transport problem during the rainy season. This contributes in part to unavailability of inputs when they are required. Prices are also high due to inaccessibility of roads during the peak agricultural season.

40. Agricultural labour and other economic activities is mostly supplied by women. Men contribute only a small fraction of the productive labour force.
41. Livestock farmers/mixed farming farmers face a critical shortage of grazing land. Most of the natural herbs are of low nutritive value. It is recommended that together with ruminants, small livestock, e.g. rabbits production could be improved to increase household incomes. The overall management system of livestock in the district needs to be improved and diversified in order to increase productivity.
42. Indigenous methods of health care for livestock are widely spread in the district. Improvements along these lines will go a long way to improving productivity of livestock in Mbinga district.
43. Development of the Matengo society will be focused on sustainable management and conservation of natural resource base orientating technological and institutional changes in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. A development process decided upon by the people and acceptable to the society. Thus, technologies available in developed countries are not necessarily applicable to the society in Mbinga. Integration of indigenous technology and social values would be necessary to realize sustainable rural development.
44. A STELLA II software computer programme was used to analyse the developmental process of the matengo people given their land carrying capacity, population, land use at family level, developmental process at the village level, and dynamics on the regional development in the whole Matengo area.
45. Development of the Matengo people requires stabilization of the rural society with sustainable agriculture on the subsistence level. The developmental stage at the higher level will depend on national policies for physical and socio-economic development. In addition, enhancement of living standards for the inhabitants and its sustainability should be ensured in the developmental goal.

46. In the central part of the Matengo area, the society has already reached the subsistence level based on *ngolo* farming system and is now shifting to the next developmental stage with the introduction of cash crops such as coffee and tobacco.

47. Development of the central Matengo highlands should aim at enhancement of the carrying capacity by extending the extensive agriculture to support the increased village population. It is recommended to establish sustainable local markets for coffee that would remain stable with the fluctuating world market. This should go hand-in-hand with improved infrastructure, e.g. road networks.

48. In the low-land zone, the construction of new infrastructures, such as roads and educational facilities are indispensable for further developments related to land use. The problem of over-population and land shortage should be considered immediately before they attain the state of the central Matengo highlands area. The goal of development in the lowland zone could be summarized as the "development with ordered land use based on appropriate 'ntambo' management."

49. For the undeveloped (miombo trees area) zone, land suitability map must be prepared through an intensive field survey and investigations. It is desirable to introduce development with a viewpoint of conservation of natural conditions-based on land use concepts.

50. Mbinga farmers are aware of their development needs as expressed in a seminar held in Mbinga town in April, 1997. At that seminar, farmers accepted some responsibilities for enhancement of their development strategy and accorded other more technical responsibilities to the extension workers and researchers.

51. Transferability of the *ngolo* technology to other areas was considered feasible but requires intensive physical and mental training since it is culturally oriented, i.e. practiced by the Matengo people only.

52. In light of this, it is proposed that future efforts should focus on working with farmers to develop new technologies aimed at increasing the productivity of the indigenous system, through diversification into new systems of production (e.g.

irrigation), new products (livestock and crops), and new systems of agro-forestry.

53. Development of institutional support mechanisms for agricultural production-services that would link input supply and provision of product marketing system is a necessity for sustainable development of Mbinga district. Farmers need further support in forming their own organizational groups to work out ways of improving their farming system in a sustainable way.

54. The **SUA Method** which entails a thorough understanding of the rural communities and their milieu through sound participatory approaches, was implemented in the last period of the project life, something which provided project collaborators with deep insights of issues pertaining to rural development. Given its strength, it is recommended that the **SUA Method** be tried out in other rural development ventures in order to update it and recommend it to people interested in rural development.

付属資料7. 収集資料リスト

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