



SOKOINE UNIVERSITY OF AGRICULTURE

RESEARCH POLICY, FOCUS AREAS, GUIDELINES AND REGULATIONS

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Directorate of Research and Postgraduate Studies
Sokoine University of Agriculture
P.O. Box 3151, Chuo Kikuu,
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PREFACE

SUA formulated for the first time research policy, priority areas and guidelines in 1992. The guidelines were reviewed for the first time in 2000. Since then there have been a number of new developments including review of SUA Corporate Strategic Plan (CSP) in 2005, then in 2009 as well as changes in National research policies and priorities which have necessitated revision of SUA research policy and guidelines. This revision is intended therefore to update the existing SUA research policy, priority areas and guidelines and facilitate smooth implementation of SUA's CSP in the research area. The Directorate of Research and Postgraduate Studies (DRPGS) established in 1988 is responsible for the administration, coordination and implementation of SUA research policy as well as monitoring and reporting on compliance of research endeavours to the University's research agenda and focus areas. In addition the directorate has the responsibility for managing research funds and monitoring all research activities undertaken at SUA. To that effect the University has put in place a set of regulations and guidelines for this purpose.

This 3rd edition contains the revised research policy, guidelines and focus areas for Sokoine University of Agriculture (SUA) as approved by 115th meeting of the University Council held on 30th June 2010. This document substitutes the 2nd edition which was printed in 2000

This edition is revising some of those regulations and guidelines to accommodate new developments as also guided by the Corporate Strategic Plan and the University Council. The University Council at its 107th meeting held on the 18th December 2008, among other things directed that there be established awards for Researchers of the year to be known as the Edward Moringe Sokoine Memorial Researcher of the Year Award as well as the Young Researcher of the Year Award.

Other instructions by Council included developing regulations and guidelines for rewarding staff that attract research funds to the University and revise the grant administration fee from 5% to 10%. This edition therefore amongst other provisions sets forth guidelines for apportionment of the grant administration fee to various cost centres including incentives for staff publishing papers in scientific journals as well as to support staff publish academic books. Other facilitative, incentives and motivational arrangements are revised accordingly.

Since 2000, a number of changes and new developments have taken place which has necessitated the revision of SUA research policy, guidelines and priority areas. Among them include the development of SUA Corporate Strategic Plan (1997-2005), revisions and development of national research policies in the fields of agriculture, natural resources and higher education. The revisions done on this document address or take into considerations these new developments.

In making revisions to this document, policies on the following sectors were referred to: Research policy on Agriculture and Livestock, National Forestry policy, Beekeeping policy, Wildlife policy, Tourism and eco-tourism policy, National Environmental policy, Higher Education policy, Industry and Energy policy and Commission for Science and Technology Research Priority areas. Research priority areas indicated in this document are areas where SUA has competence and aim at augmenting and complimenting research efforts by other national research institutions in the country.

This research document is meant to be a guide to SUA researchers and other collaborators when formulating and undertaking research at SUA. It is our hope that researchers, policy makers and the funding agencies will find this document a valuable source of information and indeed a reference material whenever one wants to engage or support research activities at SUA.

Since SUA realizes the need to keep pace with the changing world, SUA research policy, guidelines

and priority areas will be reviewed after every five years. These revisions will however be guided by SUA's research motto which is "The management of Natural Resources for Sustainable Development and Poverty Eradication".

The Directorate of Research and Postgraduate Studies (DRPGS) acknowledges the inputs from the Task Force during the preparation of the draft document, various University committees and individuals who in one way or another contributed to the production of the final document. Their efforts are highly appreciated and we look forward for their continued support.

Prof. J.A. Matovelo

Director
DRPGS

1. INTRODUCTION

The Sokoine University of Agriculture (SUA) was established by Act No. 6 of 1984 from what was formerly the Faculty of Agriculture, Forestry and Veterinary Medicine of the University of Dar es Salaam. This Act was repealed in 2005 by the Universities Act No 7 of 2005. Following the enactment of the Universities Act, SUA was granted the Charter referred to as the SUA Charter of 2007

The University has four campuses namely the SUA Main campus, Solomon Mahlangu, Olmotonyi and Mazumbai. The Main campus is located in Morogoro town on the foot-hills of the scenic Uluguru Mountains about 220 km from Dar es Salaam along the Tanzania - Zambia highway. In addition, the University has one constituent college, the Moshi University College of Cooperative and Business Studies (MUCCOBS) based in Moshi in Kilimanjaro region.

SUA is well endowed with highly trained manpower in agricultural, natural resource and environment management sciences as well as in socio-economic and human studies. This rich human resource includes a body of more than 450 academic staff, more than 80 technicians/laboratory technologists/field officers and agricultural/natural resources management officers. Others include a body of about 700 postgraduate students and about 3000 undergraduate students, as well as occasional research associates from other institutions across the world.

The University enjoys collaboration and partnership with a number of other academic and research institutions across the world. Currently the University holds Memoranda of Understanding and Collaboration Agreements with more than 50 institutions/agencies across the world. In respect of this capacity the University has over the years been able to attract/win research grants and development support from a number of institutions/agencies. As a result, the University is able to publish a minimum of 70 papers in peer reviewed scientific journal annually amongst other outputs. Further SUA wins an average of one to two patents or *sui generis* protection arrangements per year since 2007.

SUA's academic business is guided by the university's **vision** and **missions** as well as core values as stipulated in the Corporate Strategic plan (2005-2010),

SUA's main research objective is to provide leadership in basic and applied research in order to generate knowledge and innovations that respond to contemporary and emerging needs of our local and global society. Currently, the University is undertaking more than 130 research projects in various disciplines related to agricultural, natural resource and environment management sciences as well as in socio-economic and human studies.

It remains the inspiration of this University to uphold the vision and guidance of the first Chancellor of this University and Father of the Nation (Mwalimu J.K. Nyerere) that the University should endeavour to answer the needs and solve the problems of Tanzania's agriculture and rural life, manage natural resources on a sustainable manner and to contribute to improved production and therefore improved living standards of the people.

SUA has a key role to play in Tanzania's agricultural sector development and has made significant contributions to the development of the Agricultural Sector Development Programme (ASDP). While ASDP has recorded positive impact on transformation of agriculture in the country, the primacy of agriculture (KILIMO KWANZA) pronouncement was recently unveiled by the Government. KILIMO KWANZA (the primacy of agriculture) is aimed at reinforcing ASDP and according agriculture a high priority through implementation of a 10 pillars framework.

SUA is also expected to join hands with other actors in contributing to the Tanzania Government poverty reduction efforts. That is to contribute to national level goal of reducing poverty for improved people's livelihoods within the framework of MKUKUTA, Vision 2025 and MDGs.

This document is a presentation of SUA's Research Policy, its Justification, as well as envisaged strategies for its implementation. Further it is a presentation of SUA's Research Focus Areas and Guidelines. This is therefore a composite document putting together the SUA's Research Policy, Focus Areas, Research Guidelines as well as Implementation Strategies.

2. RESEARCH POLICY

A Research Policy like any other policy is an overall plan embracing general goals and acceptable procedures as well as conditions to guide and determine present and future decisions on research undertakings at SUA. In this respect the Research Policy is an instrument for giving direction and providing a broad framework to guide researchers, research administrators and Management on the whole business regarding research.

There is need therefore to have the policy as a document that defines the goal and purpose of research at SUA, actors, target beneficiaries, donors and other funders as well as visualize the outcomes and impact of research efforts by SUA and its collaborators. This policy sets out to give guidance on various aspects including goal and purpose for SUA research efforts as well as defining the parties to the policy, including:

- Who will be covered by the policy
- What will be covered by the policy
- Who will use the policy
- How will the outputs be handled
- Who will administer the policy
- How are the benefits shared across the various actors in research
- How to ensure compliance to the policy
- How to address ethical issues and conflict of interests

In this regard Sokoine University of Agriculture is commitment and a dedication of our nation to address the challenges and opportunities of development in agricultural, natural resource, the environment and allied sciences for improvement of the people's livelihoods. Particular attention is given to agricultural development in its broadest sense due to its significance as the economic mainstay of the Tanzanian people.

In the light of this commitment the University defines its policy statement, goal and purpose as well as the broad and specific objectives of its policy on research as outlined in the subsequent sections. Further, the policy sets out the justification providing the guidance for identification and prioritization of research focus areas.

2.1 Policy Statement

SUA sets out to conduct research for sustainable development of Tanzania in order to eradicate poverty, conserve nature and the environment, optimize management and use of natural resources, stem resource use conflict, improve livelihoods, contribute to good governance and empowerment of the people.

2.2 SUA Research Goal

The research goal for SUA is to be a centre of excellence for research, leading to sustainable development, eradication of poverty and technology advancement in an environmentally friendly manner for the benefit of all people.

2.3 SUA Research Purpose

Develop and sustain adequacy in national capacity to participate in agricultural and allied research disciplines to respond to challenges of sustainable development and better management of natural resources, nature and the environment. Among other things, this will include the aspect of use of alternative energy sources

2.4 Objectives

2.4.1 The Overall Objective:

Provide leadership in basic and applied research to generate new knowledge that responds to the contemporary and emerging needs of agriculture, natural resources and allied disciplines. Research should be linked to development and in particular focus on specific problems including environmental concern and conservation of natural resources as well as providing scientific breakthrough.

2.4.2 Specific objectives:

- (i) Undertaking of basic and applied research aimed at adding value of agriculture products, improving productivity and income of the poor communities while conserving the environment.
- (ii) Development of productive and appropriate technologies/innovations that are gender sensitive and environmentally friendly.
- (iii) Undertake research which will contribute to the formulation of economic policies and marketing strategies for agricultural products aimed at improving farmers' income and household food security.
- (iv) Strengthening the capacity to manage agriculture and conserve natural resources in a manner that ensures increased and sustainable productivity.
- (v) Involvement of business community, private sector, non governmental organizations, farmers, community based organizations, public institutions and development partners (donors) in supporting research activities.

2.5 Justification

Justification of the SUA research policy is drawn from the significance that Agriculture, Natural Resources and the environment play in the development of the country and the livelihoods of its people. The significance borne particularly by agriculture in respect to national development and peoples welfare is best articulated by a number of government policies and strategies including the vision 2025, ASDP, MKUKUTA and MKURABITA just to mention a few. It is on the premise of the highlights above that this policy draws its justification as further elaborated in the subsequent paragraphs.

2.5.1 The significance of the agriculture Sector

Agriculture has three important roles in the country's economic and social development: First, agriculture is a source of livelihood for the majority of Tanzanians. About 80% of the population live in the rural areas and depend on agriculture in general, while an estimated 33% of households in mainland Tanzania depend on livestock for their livelihood. This means that any efforts to improve livelihoods and alleviate poverty of Tanzanians must aim at improving the productivity and profitability of agriculture and livestock sectors.

Second, agriculture is the means to food security at household and at national level. Current estimates

are that around 42 per cent of households in Tanzania regularly have inadequate food. Localized food insecurity and hunger are common and reflect inadequate food production as well as inadequate resource endowments at the household level. Food price fluctuations put many families in a vulnerable situation. The last two years have witnessed serious food shortages in the country and point to the need for the country to take steps to ensure household food security as well as national food self sufficiency.

Third, over the years, agriculture has been the single largest contributor to GDP and foreign exchange earnings. For the period 1995 to 2003, primary agriculture directly accounted for 37% of the annual growth in GDP. Furthermore, agricultural growth has a higher multiplier effect in Tanzania than that of other sectors and is felt in all sections of the population. Consequently, agriculture will continue to be the engine of economic growth which makes agricultural development the key to the country's overall economic development.

2.5.2 The Performance of the Sector

In recent years, the performance of the agriculture sector has been modest at best. The level of agricultural growth of 3.5% has not been able to contribute significantly to the reduction of poverty of the rural poor. Given the importance of agriculture as the mainstay of rural livelihoods, agriculture must grow much faster if rural poverty reduction is to become a reality in Tanzania. Indeed, agriculture is stated to grow at an annual rate of 5% or more in order to translate into significant reduction in poverty.

Therefore the University together with other research institutions has the obligation to rise up to the challenges impinging agricultural growth in Tanzania as required to answer the needs, and solve the problems of Tanzanian agriculture and rural life, manage natural resources on a sustainable manner and to contribute towards improved production and therefore improved living standards of the people. SUA is also required to be practically oriented in its teaching and research and to be involved in the dissemination of its research results.

In this respect and according to the SUA Charter, SUA has positioned itself to play its role as the leading institution in agricultural sciences to provide leadership in basic and applied research to generate new knowledge that responds to the contemporary and emerging needs in management and development of agriculture and its allied sciences. In this endeavour SUA is guided by its research goal and mission as stipulated below. Relevant research focus areas have been identified to guide SUA researchers in formulation and execution of research that address these aspects.

3. RESEARCH FOCUS AREAS

SUA's research focus areas are selected with due consideration to the national development effort. According to the national development vision 2025 and other related policies, the focus is on achieving eradication of poverty, food security, environmental sustainability, good governance and empowerment. This document outlines the research focus areas for SUA in line with the background above.

3.1 Research Focus Areas in Agriculture

3.1.1 Improvement, Optimization and Innovation of Irrigation Technologies

Background Information

Agriculture in Tanzania is very much affected by inadequacy, seasonality and unreliability of rainfall as well as periodic droughts. It is for these reasons that irrigation is a means of stabilizing crop production and assurance of household food security although its development is still very low. Irrigation

development is hampered by many problems including; absence of hydrological data for irrigation planning, continued emphasis on sophisticated, expensive and uneconomic irrigation projects, poor project planning and inadequate project preparation, failure to develop extension packages for irrigated agriculture and the ineffectiveness of extension services to farmers

Objective

To develop engineering knowledge on mechanisms involved in land and water systems and effective strategies for land and water utilization management and conservation for sustainable/increased irrigated agricultural production.

3.1.2 Management of Land Resources, Development and Promotion of Good Land Husbandry Practices

Background Information

In Tanzania land resources inventories at different scales are not sufficiently adequate for sound planning. Handling of basic data on soils and other land resources are still to a great extent done manually and only a modest computerization has been done. Further more, many of the land resources are being exploited unsustainably, causing environmental degradation, despite the fact that growing human and livestock populations are exerting tremendous pressure on the resources. The environmental degradation is more serious in the semiarid areas, covering about 40% of the country and in humid steep slopes of the highlands and mountains that are under annual crop cultivation. Main practices contributing to environmental degradation are overgrazing, bad tillage and cropping practices, poor fertility management and deforestation.

Objective

To develop adequate and sustainable management systems of natural resources for agriculture to meet the food needs of the Tanzania population at present and in future, while maintaining quality of the environment and conserving natural resources.

3.1.3 Pre and Post Harvest Handling and Value Addition

Background Information

Agricultural produce losses during the pre and post harvest phase in Tanzania are very apparent, although there is scarcity of data. For example, overall post-harvest losses of cereal grains are estimated at 30-35%. For fruits, the losses are estimated to be 40-60%, while those of roots and tubers are about 30%. Thus, the overall indication is that post harvest losses are very high and are therefore the main contributors of food insecurity in the country in addition to the vagaries of weather and poor farming practices. Agricultural processing can be primary or secondary. Primary processing is still of low capacity. Thus increased agricultural productivity will need innovations for increased primary processing capacity of low physical and/or qualitative losses. The secondary food processing industry in Tanzania is very weak; processing only about 1% of raw food materials. Many of storage/handling structures used by small-scale farmers have limitations; hence the entire nation cannot rely solely on them. Improvements to structures are necessary to ensure food security.

Objective

To adopt, generate and promote technologies for improving quality, preservation and market ability of crop and livestock products.

3.1.4 Human Nutrition and Food Security

Background Information

The majority of Tanzanians live below poverty line. Hunger and malnutrition are key proxy indicators for poverty. The vicious circle of malnutrition and diseases in Tanzania largely affects women and children. Yet, up to present little progress has been achieved with regard to improvement in nutrition status for children and women, especially in rural areas where more than 80% of the population live. The challenges in relation to food and nutritional security in Tanzania are thus enormous. Improvements in the nutritional and food security status of the vulnerable groups (i.e. children under five, pregnant and lactating women, elderly HIV/AIDS victims, disabled and destitute groups) require research in various areas of food processing and utilization.

Objective

To improve nutritional and food security status of the vulnerable groups and the farmers' work productivity

3.1.5 Crop and livestock Improvement

Background information:

The major constraint to agricultural development is low productivity, which is caused by a multitude of factors. Among these are the available genetic resources, seasonal variations, poor husbandry and pests of crops and animals. Research geared towards solving these constraints would increase productivity of the sector. The genetic improvement combining with proper management of the farms are key to increasing productivity. Local genetic resources have desirable adaptive traits, such as resistance to diseases and harsh environments and these needs to be considered in any attempt taken on genetic improvement. Opportunities exist in the use of novel biotechnology techniques to address a lot of production constraints linked to relevant animal or crop sciences, such as nutrition, health and reproduction. Tissue culture, marker assisted selection methods and genetic modification are expected to address constraints that limit crops and forage productivity

Some of the research areas under this theme will include, crops and livestock management techniques, pests and diseases control techniques, genetic characterization and evaluation of crops and livestock for productive and reproductive traits, biotechnological approaches in the improvement of crops and animals, cross-breeding for genetic improvement and development of disease resistance traits in crops and animals.

Further, although Tanzania is endowed with large numbers of livestock of different species, livestock production indices remain very low. Even where increase in outputs has been recorded, it has in most cases been attributed to increases in numbers rather than from increased yield per livestock unit. The genetic potential of our animals is low and dependency on imported intervention packages for improvement of animal health and production very high. Artificial insemination is still in infancy and development of diagnostic, vaccination and treatment tools marginalized.

Understanding and developing better strategies in form of innovations and technologies to contend with the issues above will enhance the accessibility to solutions and improve the welfare and productivity of the target stock.

Objectives

- To enhance the accessibility to solutions and improve the welfare and productivity of the target stock.

- To improve crop and livestock production systems for the sustainable increase of crop and livestock products.

3.2 Research Focus Areas in Resource Use Conflicts and Integration

3.2.1 Environmental conservation

Background information

Reliance on heavy machinery and fossil fuels has proved to be the least sustainable form of farm power in Tanzania. A wider adoption of animal traction should be expected to increase crop harvest and promote the incomes and food security of the farmers. Productivity of draught animals can best be measured by the value of work, which they can perform without overtaxing their body condition and also not adversely affect the length of their productive life.

Objective

To ensure sustainable production system and efficient utilization of resources for increased agricultural productivity without destroying the environment

3.2.2 Range management

Background information

Changes in land use and insecurity as well as encroachment of undesirable plant species have reduced grazing lands and restricted pastoral mobility, thus diminishing carrying capacities of rangelands. This has resulted in overgrazing and land degradation in some parts of the country.

Objective

To ensure sustainable production system and efficient utilization of rangelands

3.2.3 Crop-livestock interaction

Inadequate quantities and poor quality of feed resources especially during dry periods has been a constraint to production across all livestock production systems. Crop production trends indicate that large quantities of available feed resources are under-utilised. While the livestock could enjoy crop residues as feeds, mechanisms for manure from livestock to fertilize the crop fields need to be sought.

In urban and peri-urban areas, there has been an increasing trend in small-scale agricultural production, mainly based on dairy cattle, poultry, pig production and horticultural activities. Management of large volumes of waste and pollution within a habitat with high human population density has been a problem and in some cases created health problems. Research in solving such problem is needed.

The research under this focus area should concentrate mainly on grazing behaviour and range improvement, zero grazing systems, nutrient recycling on the farm, forage conservation techniques, feed budgeting, development in aquaculture and care and use of draught animals to reduce drudgery and increase crop productivity

Objective

To enable existence of mutual understanding between livestock keepers and crop farmers through making the two sectors benefit from each other.

3.3 Research Focus Areas in Automation and Mechanization

3.3.1 Machinery and Mechanization

Background Information

Tanzania's agriculture has remained subsistence farming with smallholders who cultivate 85% of the arable land working between 0.2 and 2.0 ha with an average per capita holding of only 0.2 ha per household. The major limitation of the size of the land holdings and utilization is the heavy reliance on the hand hoe, which sets obvious limitations on the area of crops that can be grown using family labour. The hand-hoe syndrome is thus a course and symptom of rural poverty in the country. Given the general abundant arable land, the households' capacity to increase their production through land expansion depends on the extent to which they can use labour saving technologies (e.g. animal traction, power tillage, tractor hire services, and minimum cultivation techniques)

Objective

To improve different sources of energy and power utilization systems that will increase the exploitation of agricultural potential of Tanzania.

3.3.2 Post harvest Engineering and Management

Background Information

Much as production remains low for most of crops and livestock products, especially by small scale farmers in Tanzania, yet substantial proportions of yields are lost post harvest. The loss is experienced right from the field where pests may start invading the crop but also some loss occurs during harvest depending on the harvesting method used. Other losses occur during transport and under storage. Suitable harvesting techniques, handling during transport, processing prior to storage, packaging and storage itself need to be established for each kind of crop/livestock product.

Objective

To minimize post harvest losses of various crops/livestock products and improve quality

3.4 Research Focus Areas in Policy Analysis, Good Governance, Crosscutting and Strategic Studies

3.4.1 Socio-Economic and Policy Related Factors Influencing Agricultural Transformation

Background information

Besides production constraints to agricultural sector development, socio-economic and policy related factors constrain the agricultural sector. These constraints relate to micro and macro policies that directly or indirectly influence the agricultural sector. Factors that influence the domestic, regional and international marketing need also be assessed in order to exploit existing opportunities.

Objective

To identify critical socio-economic and policy related interventions to support the transformation of agriculture in Tanzania.

3.4.2 Good Governance

Background information

Good governance is one of the key issues in ensuring the country's development, the other

issues being people (manpower), land and good policies. Whatever good intentions may be in place for conducting research, without good governance the research results obtained may not benefit the targeted majority. Accountability, transparency and integrity are necessary for the country to seriously strive to eradicate poverty and promote growth. SUA should be working towards contributing to programmes like NSGRP (*MKUKUTA*), that is the National Strategy of Growth and Reduction of Poverty and other similar programmes.

Objective

To effectively contribute to good governance

3.4.3 Gender and Development

Background information

A great deal of inequality and inequity that loomed the early years of human life ultimately gave rise to questioning the rationale for the oppressive scenarios. The questioning culminated into the inception of Gender and Development Science. In 1945, the United Nations Charter recognized inequality between men and women in spheres of access to resources, decision-making, access to education and professional opportunities and earning power. In spite of the recognition, the majority of development planners did not address fully women's position in the development process. They assumed that what was benefiting men would automatically trickle down to women. There were various United Nations' Conventions addressing the improvement of the position of women with regard to the above inequalities and inequities. However, women's position between 1950s and 1970s did not change appreciably. Accordingly, from the 1970s, the United Nations decided to give more impetus to equitable development of men and women and fairer division of labour between the two groups. The decade 1976 -1985 was named the UN Decade for Women. The main objective was to remove or at least reduce substantially, disparities between women's and men's positions. The Beijing Conference that took place in Beijing, China in late August and early September 1995 indicated further recognition of gender for development. About 30,000 women attended the conference from 185 countries. The key objective was to ensure that the principles of equality, development and peace are translated into action for women. The main idea was to develop and endorse strategies to eliminate gender discrimination and promote new partnership between men and women in the 21 st century.

Objective

To examine implementation of the above resolutions in Tanzania and develop reasons for gender to be a development issue.

3.4.4 Agricultural Support Services and Producers Organizations

Inadequacy of agricultural technical support service is recognized as one of the limiting factors to agricultural development in Tanzania. Such support services include financial services, agricultural education for farmers and technical staff as well as agricultural extension services. These are important drivers of agricultural change. Analysis of the delivery systems of such services is important for any effective application of science and technology for the improvement of the agricultural sector.

Objective

To improve delivery systems of agricultural support services including agricultural education and extension services, financial services, agricultural inputs and information.

3.4.5 Food Security and Demographic Surveillance

Background information

Food security is one of the major concerns of developing countries (especially in Africa south of the

Sahara) despite the efforts to improve food situation in the world. Food security can be viewed at different spatial levels: global, national and household. Globally the concern is whether the food output can increase to meet global food requirements, particularly in developing countries. At national level many developing countries have pursued policies of achieving self-sufficiency in staple foods as a way of addressing food insecurity problems.

Food security in many developing countries is related to poverty. Households that have difficulties in accessing productive resources like: land, forests, water, technology, and credit are likely to be food insecure. The socio-economic change in any society relies on the interaction and balance between the identified needs of that society, available resources, the selection or implementation of related interventions and the social, behavioural, biological and environmental contexts. In order to bring about necessary changes aimed at improving the life conditions, countries must decide on the best approaches to adopt. This requires for detailed and accurate information on the needs, possibilities and consequences of recommended actions or interventions. Such information in many developing countries is often lacking, inadequate or unreliable. Quite often decisions based on assumptions or unfounded conclusions result in selection of inappropriate policies or programmes. One of the ways of providing information needed for decision-making is through establishment of a survey system that collects in depth socio-economic data at household, community and population levels.

Objective

The goal is to document linkages between the households' food security status, health and demographic dynamics using a Demographic Surveillance System (DSS) (a longitudinal) approach. There exists no evidence so far linking the households' food security, poverty, health status, and demographic dynamics (births, deaths and migratory phenomena).

3.4.6 HIV/AIDS

Background information

HIV/AIDS pandemic is currently a major challenge to development. The pandemic is recognized by UN and WHO as the world's biggest fatal disease and one of the largest cause of death in Africa. It estimated that between 65-85% of the HIV infected are found in Africa South of Sahara. In this region the most hit include Southern and Eastern Africa. Women and those economically active, ages 15-49, are among the most hit.

HIV / AIDS has serious direct and indirect adverse effects in communities. HIV / AIDS pandemic leads to loss of human capacity. It reduces staff time when caring for family and attending funerals. It also leads to diversion of funds for medical expenses, sick leaves, funeral costs, additional training expenses as well as terminal benefits.

The nature of the pandemic and the fact that no cure is currently in place has made international and national organizations to declare it a disaster that requires emergency action to reduce the magnitude of the problem. Many countries in Africa South of the Sahara have developed national strategic frameworks to control the pandemic.

Objective

The goal is to document the dynamics in knowledge, attitude, and sexual behaviour towards STDs/HIV /AIDS among the SUA community and in surrounding communities so that the information can contribute subsequent efforts to control the pandemic within the country.

3.4.7 Indigenous Knowledge and Technology

Background

Over many decades, the problems of land degradation in dry land regions have continued to worsen. Over cultivation, overgrazing, deforestation and poor land and water use practices lead to desertification, degradation of soil fertility, loss of bio-diversity, reduction of productivity and livelihood systems. These problems are spread over the globe, but are especially affecting Africa. People suffer from scarcity of water and food shortages. Famine, poverty, diseases, migration and conflicts are often the result.

The economy of Tanzania is largely dependent on the agriculture. The agricultural production in Tanzania is based on the small-scale farming systems. Most parts of the country, including semi-arid areas have been facing chronic problems related to low agricultural production. Declined agricultural production is a consequence of many factors. Some of these factors include low soil fertility, shortage of available arable land as a result of increased population pressure, shortage of grazing land, land use conflicts, unreliable weather conditions, poor transmission of agricultural research and development findings (technologies), lack of capital to poor resource farmers, and lack of inclusion of indigenous knowledge in agricultural production to mention a few.

In Tanzania as well as other countries in Sub Saharan Africa (S8-A), the small-scale farming is largely conducted through applying indigenous knowledge. However, scientists, researchers, extensionists, planners and policy makers do not have a wider knowledge of the betterment of the indigenous knowledge on agricultural development and general food security improvement. Recently, indigenous knowledge on agricultural development as well as food security has gained a global recognition. Indigenous knowledge is an immensely valuable resource that provides humankind with insight on how communities have interacted with their changing environment. In SSA including Tanzania, indigenous knowledge systems have never been widely systematically recorded in written forms and therefore are not readily accessible to agricultural researchers, development practitioners, and policy makers. This is observed as being against in implementing the Agenda 21, which is one of the three non-binding environmental agreements signed at United Nations Conference on Environment and Development (UNCED), emphasizing that local governments and intergovernmental organizations should respect, record, and work toward incorporating indigenous knowledge systems into research and development programs for the conservation of biodiversity and sustainability of agricultural and natural resource management systems.

Objective

The goal is to analyse the role of indigenous knowledge in development of smallholder farming systems in Tanzania

3.5 Research Focus Areas in Natural Resources Management and the Environment

3.5.1 Resource Assessment and Development of Technologies for Management of Forest Resources

Background Information Forests in Tanzania can be categorized as natural and planted (plantation) forests. The existing methodologies for assessing forest resources are those designed to get information of trees inside the forest. Currently, there have been a lot of local community initiatives in planting trees in small-scale mono culture plantations and homesteads. The methodologies for assessing these resources and harvesting aspects have not been studied and documented in detail. In the Miombo woodlands, there are no proper records kept on the industrial timber extracted from Miombo woodlands and on the impacts of timber harvesting on the environment and labour. Over-harvesting and poor

logging practices, soil compaction, destruction of under-storeys, soil erosion and excessive logging residues and occupational accidents are evident in these forests.

Objective

To develop methodologies for assessing trees resources outside forest, develop and disseminate simple and environmentally sound timber harvesting technologies which will minimize workload, occupational accidents, environmental and or crop damages and reduce logging and sawmill wastes.

3.5.2 Ecosystem Governance and Biodiversity Conservation for Sustainable Development

Background information

Ecosystem governance and biodiversity conservation is a major concern world wide. The objectives of forest and wildlife management are diverse following the varied nature of the ecosystem itself. These are classified based on protection as well as production. Protection enhanced forest management is aimed at managing catchments, wildlife protected areas and biological diversity conservation. This was facilitated by restricting human activities in forest reserves and national parks; the approach which resulted into serious human-resource use conflicts. While at different agro-ecological zones, different agro-forestry technologies are being used to sustain the environment and improve livelihoods. In recent years, The National Forest and Wildlife Policies have recognized the role of the private sector in management of forest and wildlife resources. This has resulted to the essence of developing enabling institutional environments to arrest the cropping problems in resource management. In forestry, emphasis has been given to Joint Forest Management (JFM) and Community Based Conservation (CBC) for wildlife between the central government and specialized executive agencies, the private sector or the local governments. However, the management shifts requires good governance that remove barriers and install the policy and institutional systems, which spread good use and management. Although forests and wildlife must continue playing an important role in poverty reduction and sustaining the environment, what is happening to the ecosystems basing on the new conservation and management approaches is not well know.

Objective

To document and develop mechanisms for enabling forestry and wildlife to serve as a lever for better governance in light of national and global concerns of resource-use conflicts, biodiversity conservation, ecosystem management and poverty alleviation; use agro-forestry systems to sustain the environment and improve livelihoods.

3.5.3 Wood Energy Resources

Background information

Wood Energy constitutes a major source of energy in most countries, both developing and developed. The energy economy in Tanzania is largely focused on collecting, distributing, and consuming wood fuels (wood and charcoal) to satisfy household demands for cooking and curing tobacco in areas where tobacco farming is practiced. As much as 90% of all primary energy consumed in Tanzania is biomass based. The commercial and industrial energy sectors in Tanzania are extremely small in relation to the household sector. Virtually, all of Tanzania's wood fuel comes from forests-over 90% of all round wood harvests are for charcoal and fuel wood. Yet, the efficiency production of charcoal especially, in 'traditional' kilns is below 30%. As can be expected, much of the demand for fuel wood is satisfied through deforestation. It is estimated that about 70% of the deforestation in Tanzania is due to fuel wood. Given Tanzania's heavy dependence on biomass resources for primary energy, the resultant mining of natural forests, and expected increases in deforestation, it is clear that measures to broadly affect the proper production and consumption at higher and lower (household) levels are of importance.

Objective

To ensure the effective and efficient use of wood energy, assess the environmental impacts; and identify the main critical problem areas to be tackled for the development of sustainable wood energy systems in the country.

3.5.4 Non-Timber Forest Products

Background information

Forests provide a large variety of products and offer diverse environmental services worldwide. However, after World War II, institutional attention focused on the production of timber, leaving aside non-timber (or non-wood) forest products (NTFP) and most of the environmental functions. In recent years a growing interest in multiple uses of forests has brought the issue of NTFP to the forefront of the research and development agenda. A commonly held view is that NTFP, which among others include mushrooms, bees and other potential insects, can offer options for improving people livelihoods while at the same time helping to conserve the forest against some of the threats. A prerequisite to enhance the contribution of NTFP to the people's livelihoods and to the forest conservation and sustainable management is research that provides bottom-line information and scientific assessment of this potential. For instances, although mushrooms are used as food and medicine in many societies, their nutritional, ecological, medicinal and biotechnological importance are not adequately studied and documented.

Objective

Assessments of indigenous knowledge, management, use, biological and economic potentials of non-timber forest products such as mushrooms and bees while identifying best approaches and scientific basis for development of their industry.

3.5.5 Environmental Research, Education and Protection

Protection of the environment has become a world agenda. Governments, through different bodies within their borders have adopted diverse approaches aimed at protecting the environment from localized activities that lead to environmental degradation. It can be said that environmental problems are multifaceted, of varying magnitude from one country to another. This highlights that a collective multidisciplinary approach has to be used in order to bring about significant impact to the protection. Environmental degradation originates from localized activities but their effects are never localized. Pollutants, like other natural substances constantly, through chemical and bio-geochemical cycles, are transported from one sphere to another. The three important spheres are air, water and land. Whereas effects of land degradation and pollution can easily be contained within borders of country of origin, less achievement is attained from water pollution problem and practically impossible to contain polluted air from reaching other countries. Nevertheless, a solution to all environmental problems lies within the mandate of individual countries and international organizations plays a coordinating role. It is on this context that the Faculty of Science (FoS) has to play a role that will contribute to the country's agenda for environmental research, education and protection.

3.5.6 Pollution Prevention and Control

Researches in pollution types, causes and prevention is of great importance since pollutants include a limitless number of substances naturally occurring or of anthropogenic origin like agriculture and mining which is increasingly becoming a major activity at both industrial and artisan levels. It will be essential to have well-equipped laboratories and other monitoring instruments that are vital in establishing environmental problems or predicting the possible fate of pollutants. Major areas of research will include climate change, nutrient and pesticide pollution, heavy metals pollution, noxious gases, aerosols and groundwater quality management.

3.5.6.1 Aquatic ecosystems and water quality

The aquatic system is commonly becoming an ultimate receiver of pollutants originating from air and land. The pollutants from the two spheres will ultimately be washed to the aquatic environment. Given the location of our country, Tanzania is endowed with several small inland water bodies and a significant area of bordering great lakes, Victoria, Tanganyika and Eyasi. All the bordering lakes are proving to be important economic areas for fisheries production, navigation activities and sources of water for both industrial and domestic uses. A problem has risen from the understanding that due to high population growth of the regions there has been problems of over fishing, increased agricultural activities, expansion of towns and consequently higher waste disposal. Water quality has therefore become a major concern and the Lake Victoria basin is a typical example of the changes. Aquatic environment has been identified to be of major concern for research so as to bring about scientific information for better management and safety of the beneficiaries of the ecosystems.

3.5.6.2 Biodiversity Conservation

Loss of biodiversity has been another major consequence of non sustainable use of resources. The quality of biodiversity has been an overall consequence of various interlinked activities. Since there are various recognized consequences of environmental degradation, it is understandable to research and use data from biodiversity changes as part of the warning system about the environmental status of our country.

3.5.6.3 Technological advancement and risk assessment

In recent years, Tanzania has attracted a lot of investments in manufacturing industries and mining activities. As the numbers of such activities increase, regulatory mechanisms have to be in place ensuring that together with our country's quest for development, there are acceptable production practices. With the support of the recent enacted Environmental Law, SUA will be involved in the training and Environmental risk assessment by establishing Environmental Impact Assessment (EIA) report for projects to be undertaken within our borders.

3.5.6.4 Environmental education and dissemination

Environmental concern has not only been on the identification of the problems related to pollution or management. In most cases, it has been difficult to disseminate gathered information to the beneficiaries and daily users or implementers of the environmental management most of who live in villages. It is important to provide support to dissemination of various research findings using understandable language and educational materials.

Common Objective:

To increase awareness on environmental problems in Tanzania and establish possible mitigation measures especially against anthropogenic factors so as to have a cleaner and greener environment.

3.6 Research Focus Areas in Vector and Pest Management

One of the major constraints in crop production and animal productivity in Tanzania is the damage and loss caused by pests, particularly vertebrates, invertebrates and weeds. In public health, vector-borne diseases are also an important problem. Worldwide pests account for 36% loss of potential crop yield at farm level, while in storage, another 14% of the harvested crops is lost to pests. In Tanzania, there has been tremendous progress in research and development on agriculture and animal husbandry in the last 40 years, but there is little reduction of pest burden on small scale farmers. Pests, particularly insects, rodents and birds, continue to ravage crops and transmit diseases to animals and man. Furthermore, environmental pests such as termites cause substantial damage to structures and vegetation, while domestic pests like cockroaches are a big nuisance to people. A need to develop pest management strategies, which are based on better understanding of their biology, ecology, and interrelations with

other organisms in the ecosystem should include:

- Intensifying research on designing effective, culturally feasible, economical and sustainable methods for managing major pests including rodents, insect pests of field and stored crops, plant diseases and weeds at the farmer level.
- To establish thorough understanding on the ecology, taxonomy, behaviour and distribution, and consequently develop appropriate control strategies which are environmentally friendly, culturally and economically feasible and sustainable.
- To research on, and establish appropriate technologies for effective management of pests which cause severe damage of structures and the environment in general.

3.7 Research Focus Areas in Animal and Public Health Management

3.7.1 Epidemiology and Control of Endemic and Emerging Diseases

Background information

In the absence of natural disasters like drought and floods, Health related livestock problems are one most important single factor limiting the productivity of livestock and is also one single most important factor afflicting heavy stock losses in sporadic and epidemic proportions.

Diseases transmitted by vectors like ticks and Tsetse flies alone have been recorded to account for as much as 80% of the livestock losses annually.

Further, a number of animal diseases that are transmittable to humans like tuberculosis, worms and rabies continue to pose serious public health risks to exposed populations.

Understanding the patterns and behaviour of the existing and emerging diseases like bird flu in animal populations as well as understanding mechanisms of development of diseases of concern is crucial in the formulation of effective surveillance, diagnostic and management systems.

Objectives

To enhance capacity for management and safeguarding of public health.

3.7.2 Development of Pharmaceuticals and Biologicals

Background information

Most devastating animal health episodes like foot & mouth disease, anthrax, lung sickness etc. do in most cases occur in epidemic proportions with little effective advance warning time. Most such diseases are best kept at bay by mass vaccination campaigns and management of stock movements.

Development of capacity to develop appropriate vaccines for prevention and pharmaceuticals/biologicals for treatment of breakthrough cases is crucial in sustainability of stock health and the economic welfare of communities that depend heavily on livestock for their livelihoods and for reducing the vulnerability of such communities to economic upsets.

Objective

Enhance capacity in preventive veterinary medicine and routine herd health management.

3.7.3 Indigenous Ethnoveterinary and Phytomedicine Practices

Background information

Pastoral communities being cognizant of the ever present threat of disease to their animals have over the years developed, utilized and perfected a practice of ethno-veterinary phytomedicine to ward off health disasters to their stocks. While the introduction of modern medicine has played a complementary role in some of pastoral communities, in other communities modern medicine has introduced an alternative to phytomedicine which has not always been well sustained. Such fluctuations have at times put pastoral communities at higher vulnerability risks. Further, the dominance of modern medicine and the convenience of its use in some situations has led to loss of the wealth knowledge on ethno-veterinary knowledge. Even where ethnoveterinary practices appear sustained knowledge is lacking on the scientific verification, quantification and characterization of the phytomedical sources in use. This has limited the development of practices for propagation of plants of medicinal value as it has also limited the extraction, packaged and regulation of the active substances in phytomedicine for purposes of marketing the in expanded markets. Where this has happened, in most cases the local communities have been excluded in sharing the benefits of modernization and commercialization.

Objective

Prospect, identify, collect, propagate, characterize, package and optimize the use & efficacy of medicines of plant origin for animal and human health in a manner that assures equitable benefit sharing.

3.7.4 Health and disease interaction between humans and animals

Background information

Global environmental changes including all major changes due to human activities, e.g. climate change, habitat and ecosystem alteration, land use changes, overexploitation of living resources, soil, air and water pollution, biological invasion, and animal/plant/pathogen interaction are causing major threats to living systems through the impacts they can exert in disrupting the interactions between these organisms and their associated organisms like parasites, pathogens and symbionts.

Today's world is changing at an unprecedented rate resulting in changing patterns of infectious diseases. As recently exemplified by H1N1, the emergence of a pandemic strain of influenza or other virulent pathogen remains an ongoing threat to human health. The need to respond to the threat from new and emerging pathogens so that we are better able to anticipate, prepare for, and control future outbreaks is great. SUA recognises that important new insights into the drivers and control of infectious diseases in human populations can only be achieved by taking a holistic systems approach which takes into account the ways in which the natural and social environments affect the emergence (emergence, re-emergence, and development of drug resistance) and spread of infectious disease. This new paradigm will enable us to respond proactively to the threat from novel pathogens and emerging infections. Since most emerging infections are zoonotic, we are particularly keen to better understand the animal reservoir as a source of infectious diseases and how animal pathogens spill-over into human populations and spread through communities in Tanzania or other parts of the world.

Objective

To establish novel inter-disciplinary approaches to study ecology of infectious diseases between humans, animals and their control.

3.8 Research Focus Areas in Information Management, Documentation, Dissemination and Communication

Sokoine National Agricultural Library in Tanzania offers library and information services in agriculture and related fields to SUA staff and students and other researchers, extension workers, teachers, farmers and any other people. Research in library and information systems will be mainly applied and client oriented in nature as well as demand driven to satisfy user information needs. The interdisciplinary approach will be applied on how to automate library services requiring professionals with different specialization in appropriate information management and evaluation. Linkage with other libraries already automated requires exploratory research so to be linked with other information sources and networks. Research will be applied and problem oriented under the following priority areas:

3.8.1 Application of Information and communication Technologies for Communicating Research Results and Poverty Reduction in Tanzania.

Background Information

In order to be effective, research findings must reach, be adopted and used by the intended users such as farmers, policy makers, scientists and others. Frequently research results are disseminated, but fail to reach the intended users where and when they are needed because of poor dissemination processes. The traditional approach of disseminating research findings through extension services has proved ineffective in many developing countries including Tanzania. This implies that research will not make contribution to achieving development goals including poverty reduction if research results are not successfully communicated to final users and put to use.

One possible way of achieving greater communication and information flow is through the use of ICTs. Sustainable, ICT -based and appropriate mechanisms for communicating research results will be developed. Ways to integrate ICTs within strategies for combating poverty reduction will be developed as well.

Objectives

- Contribute to development and poverty reduction efforts in Tanzania.
- Develop appropriate strategies for effective utilization of ICTs
- Develop strategies that promote adoption and diffusion of ICTs in different social settings

3.8.2 Access to and Effective Use of Information Resources for Development

Background Information

The world of information is changing day after day. The technological developments and changes that are taking place in processing, storage and retrieval of information as well as the proliferation of information resources creates complexity among various information users in the whole process of information searching, retrieving, evaluating and use.

Levels of information skills, formulating/testing effective ways that will enhance access to and use of information as well as strategies employed in managing information resources for development in Tanzania will be investigated. Appropriate methods and approaches for enhancing access and use of information resources will be determined.

Objectives

- Barriers to effective use of information resources will be identified and solutions formulated.

- Strategies for access and effective use of information resources shall be developed and put into use.

3.8.3 Knowledge management

Background information

Knowledge can be viewed as being familiarity, awareness and understanding gained through experience or study, and results from making comparisons, identifying consequences, and making connections. In organizational terms, knowledge is generally thought of as being “know how”, or “applied action”. Knowledge is derived from information but it is richer and more meaningful than information.

Most business actions require the guidance of both explicit (recorded) and tacit (unrecorded) knowledge. Moreover, it is known that knowledge originates in individuals, but it is embodied in teams and organizations. In an organization, examples of explicit knowledge are strategies, methodologies, processes, patents, products, and services. Examples of tacit knowledge in an organizational context are skills and competencies, experiences, relationships within and outside the organization, individual beliefs and values, and ideas. Some knowledge is also embedded in work processes, and it exists in all core functions of an organization as well as in its systems and infrastructure. So the question is how to capture, preserve and share knowledge embedded in these entities especially from individuals who may leave the organization by transfers or calamities like deaths and so on.

Effective knowledge management approaches need be researched to come up with appropriate strategies for knowledge management and knowledge assets.

Objective

To identify through research the know-how embedded in work, by individuals, groups at work and communities in the field with a focus on how such knowledge will be applied.

3.8.4 Adapting Computers in Data Collection and Analysis

Research on computer adaptations to equipment, microscopes and particle counters: use of electronic microscope to capture and interpret observations. Scientific research requires consistent, comprehensive and objective data collection and analysis. To overcome human limitations in achieving such quality (and quantity), introduction of adopting computers in data collection, synthesis, analysis and eventual display of output will be a great service.

3.8.5 Systems Modelling and Simulation

Research on modelling of field scenario and simulation of research variables by using computers: Most research on agrarian sciences requires much investment in time to achieve a complete cycle of events. Use of modelling and computer simulation would greatly reduce the time required in the field, e.g., agricultural seasons which require input of rainfall.

The Initiative in continuing education and farmers’ education is geared towards developing, promoting and undertaking the provision of adult and continuing education. Research outputs should lead to enhanced dissemination of various applied sciences and technologies which are required for improved rural economy and the efficacious solutions on the economic and social problems of rural areas in Tanzania.

3.8.6 Innovation Adoption and Impact Assessment Studies

Background Information

For an innovation to generate its benefits it must be adopted by target beneficiaries. Therefore adoption

studies must be undertaken to understand the extent by which technologies disseminated to target farmers are being used. Therefore studies on adoption must be a component part of every SUA project that develops innovations for the target population.

The adoption study should be done to examine i) The technique employed in disseminating information; ii) Extent of farmer participation in decision making at various levels and phases of project design and implementation; iii) Extent of adoption including rates and intensity of adoption, continued use and diffusion of innovation; iv) Pattern of adoption and category of adopters and v) Reasons for adoption and or abandonment of technologies.

On the other hand, impact assessment studies need to be undertaken in order to evaluate the intended and unintended effects of the research projects SUA undertake. The impact assessment is also demanded by donors and planners in order to look at the project effects in terms of behavioural change of the potential users. The assessment deals with extent (number of users) and intensity (degree of use) of adoption of the output and the subsequent effects on production, environment, income and whatever the development objective may be.

Expected achievement

- The extent and intensity of use of the SUA technologies in terms of how many and by how much they use them will be understood
- The effects of the SUA technologies in terms of increased wealthy, poverty reduction and improved wealth will be known.
- Donors will be able to know the effectiveness by which their funds have been able to bring the intended effects

3.8.7 Technology Transfer, Up-scaling and Out-scaling

Background Information

The objective of technology transfer is to enhance speed of movement of technologies developed by SUA researchers, from the point of development to the intended beneficiaries. While the aim of technology transfer is to enhance use of technologies by the intended beneficiaries, yet to widen the scope of use of technologies up-scaling and out-scaling through different path ways is a crucial endeavour. Out-scaling looks at the application of an innovation at the same scale but with neighbours. In this respect a test shall be conducted to find out the extent to which the technology can be adapted to slightly different circumstances. On the other hand up-scaling tries to influence higher level authorities by exploring wider applications of the technology by interacting with policy, institutions, government systems, trade partners and other avenues.

Expected Achievement

- This research focus will widen the scope of use of the technologies developed at SUA.

3.8.8 Policy Analysis

Background Information

One of the critical factors in agricultural development under whatever economic system is its policy or sectoral strategy. All sectors compete for the limited resources at the disposal of the society. The criteria by which resources are allocated in the public sector, depends on weight given to the sector. Policy is therefore, an important instrument in providing overall direction and weight to a sector in question.

Policies are instruments of governance, they are rational, non-theoretical and goal oriented tools that provide the most efficient means to obtain certain desired goals. The objective of policy analysis is to provide policy makers with information that could be used to exercise reasoned judgement in finding solutions to the practical problems.

SUA researchers do and develop technologies in a number of areas. The results from such researches are subject to many effects and impacts of policies including competition for resources from various sources including the government. In this endeavour, SUA researchers must take position as policy analysts to be able to develop policies, inform and help policy makers to take difficult decisions by ensuring that, senior policy makers understand the policy issues involved in making decisions. This is done by creating and conveying to the policy makers an understanding of the policy related issues of the development of agriculture sectors and/or sub-sectors and other researched areas quickly and clearly.

Expected Achievement

- Agricultural sector policies and the related issues shall be identify and prioritised;
- Government policy objectives relevant for agriculture sector and its sub sector shall be clarified;
- Potential conflicts between different policies, policy objectives and interests shall be identified;
- Current policies and their consequences shall be identified;
- Alternative viable policy instruments, their probable direct and indirect consequences and the risks of policy failure shall be identified;
- Criteria and indicators to assess progress towards objectives shall be developed and,
- Viable policy packages, with associated strategies to obtain potential support and ensure organisational effectiveness shall be designed.

3.8.9 Institutional Studies

Background Information

Institutions can affect agriculture from a number of areas including input supply, crop management, transportation, price determination, marketing to processing to final consumption of agricultural products. Institutions provide motivation and incentives for people or groups to act in particular ways, they have the power to ensure people act in certain ways and they shape behaviour of the society members. Efficiency of institutions at different levels from cooperative unions, crop and livestock boards, ministries, departments, commercial banks and other non-bank financial institutions and farmer associations determine the use (adoption) and impacts of technologies developed disseminated in their areas.

With respect to SUA research projects, institutions like religion (Muslim and/or Christianity), land tenure systems, input supply, markets, etc. may affect project designs and eventual implementation. Some institutions like farmer associations, ministry of agriculture, TFDA etc. may affect management and implementation of our projects. Therefore, unless the above issues are addressed in the project design, sustainability of the project is doubtful and questionable. On the other hand, some institutions may be harmed by the project in question. For instance, if a new project to be implemented requires a new institutional set up (eg. new land tenure system) this may disrupt the informal traditions. Projects of this type encounter resistance from the society members who for some reasons may not be ready to change their traditions to give way to a new institution.

Expected Achievement

- Both formal and informal institutions at international, national and local level that affect performance of SUA research activities shall be identified.

- The potential role that the institutions could play in the implementation of the project and potential impact that the research could have to the existing institutions at all levels shall be identified.
- The capacity and capability of the institutions to undertake the project in terms of organisational structure and resources (capacity) and in terms of ability of the individuals or groups within the institution to achieve an acceptable level of performance (capability) shall be appraised.
- Strategies to strengthen institutions to improve their capacity and capability in order to support growth and progress of the SUA projects shall be designed.

3.9 Research Focus Areas in Finance, Entrepreneurship and Business Development Studies

3.9.1 Entrepreneurship

Background information

Entrepreneurship can be defined as the discovery and exploitation of opportunities. However, in most developing countries, such as Tanzania, entrepreneurship is seen as the utilization of opportunities through the creation of new business firms or the ‘process of starting and continuing to expand new businesses. It is often claimed that entrepreneurship is indispensable for economic growth and development. These claims are mostly generated by scholars working in the field of entrepreneurship and management studies. In contrast, development economics scholars seem to be less concerned about entrepreneurship in the development process. This poses a serious problem in policy making. Should the policy makers take suggestions of scholars working in the field of entrepreneurship or development economics scholars? In order to solve this conundrum it is important to examine the arguments and evidence provided by these two groups. The main objective of studies in this area should include, but not limited to, finding out whether entrepreneurship is a binding constraint for development in Tanzania, finding out how entrepreneurship and entrepreneurs for that matter can be supported in order to enhance their contribution to poverty alleviation efforts.

Objective

To enhance the contribution of local entrepreneurs towards the government’s efforts to alleviate poverty.

3.9.2 Business Development Studies

Background information

The development of SMEs is seen globally, and especially in developing countries, as a key strategy for economic growth, job generation and poverty reduction. Consequently it is not surprising that many developing countries are promoting small businesses as an engine for economic growth and socio-economic integration. More recently, due to the growth of unemployment in many sub Saharan African countries, there has been a renewed focus on the promotion of small businesses from both the government and the private sector, not simply as an engine for growth but more importantly as the key to job generation and poverty reduction, especially among historically disadvantaged groups, such as women. Studies on the prerequisite for successful establishment and operation of small and medium scale enterprises are required in order to ensure successful promotion of the development of small and medium scale enterprises. Studies in this area should focus on institutional support, e.g. business development services availability and affordability, access to financial services, and basic business management training. Moreover, studies should examine the synergies between SMEs development and other poverty alleviation efforts in the country.

Objective

To enhance the contribution of small and medium scale enterprises in the country's efforts to alleviate poverty.

3.9.3 Finance Studies

Background information

Financial services refer to services provided by the finance industry. The finance industry encompasses a broad range of organizations that deal with the management of money. Among these organizations are banks, microfinance institutions, and insurance companies. Since financial services is among the most important factors which influence the performance of small and medium scale enterprises which are supposed to be the driving force for economic growth in developing countries such as Tanzania, then studying their performance in terms of provision of services at affordable charges is necessary. The focus for studies under this area should be: examining how performances of financial institution in the country hinder/favour establishment and operation of small and medium scale enterprises.

Objective

To ensure availability and accessibility of financial services (for SMEs) so as to enhance the performance of small and medium scale enterprises which have an important role to play in economic development.

3.9.4 Studies on Emerging Issues

Background information

Tanzania, like other country should take an active role in important emerging issues such as increasing the use of renewable energy and identifying and examining coping strategies for problems such as frequent droughts and floods which are caused by climate change. Studies in this area should focus on examining how small-scale farmers can be integrated in the production and use of biofuels; studying the impacts of producing bio-fuels in the country on poverty and food security.

Objectives:

1. To ensure that Tanzanian farmers take full advantage of the increasing demand for biofuels in the world.
2. Ensure that farmers are well prepared to deal with the negative impacts of climate change.

4. STRATEGIES

Given that the Objective of research undertakings at SUA is to conduct basic and applied research to generate new knowledge that responds to the contemporary and emerging needs of the society, SUA has outlined a number of strategies to that effect. These include strategies for:

4.1 Identification of sources of funds and resource mobilization

- (i) Institutionalize and ensure that 1% of the Government disbursement to SUA is allocated for research activities in line with Government commitment to set aside 1% of its budget for research.
- (ii) Rationalize the grant administration fee to cater for strengthening capacity at the University level, Faculties/Institutes/Centres/Departments, improvement of physical and other infrastructures as well as provision of incentives and motivation to staff.

- (iii) Researchers attracting funds to SUA be given monetary and other incentives
- (iv) Researchers prolific in publishing papers, books, other publications and winning patents and other forms of IP protection be given monetary and other incentives
- (v) Encourage university-private sector partnership to attract research funds in areas of mutual interest
- (vi) Solicit the government to increase her funding to SUA through research and programmes that support national development agenda
- (vii) Strengthen capabilities in searching, identifying and sharing of information on all potential sources of funds for research and development across the world to enhance SUA's access to and use of international research funding possibilities
- (viii) Engage in activities that will build capacity in proposal writing and research skills

4.2 Engagement of relevant actors, stakeholders and end-users

- (i) Conduct demand driven research
- (ii) Utilize participatory approaches in research and outreach
- (iii) Develop and implement an effective and sustainable communication strategy
- (iv) Strengthen participation and collaboration of various prospective end-users of SUA's research results
- (v) Strengthen research infrastructure
- (vi) Engage in basic research and strengthen applied research to contribute to the generation of new knowledge and technologies

4.3 Influencing policy and policy makers

- (i) Prepare policy briefs regularly
- (ii) Hold regular policy brief fora
- (iii) Conduct regular result sharing workshops
- (iv) Address issues of poverty reduction and national priority
- (v) Sensitize government on the positive and critical role of research and the need for increased funding.

4.4 Communication, up-scaling and out-scaling

- (i) Enhance researchers and other stakeholders access to reliable and current information
- (ii) Create a mechanism to enhance communication between researchers, extension agents, local authorities and communities, and policy makers
- (iii) Strengthen networking with other information resource centres
- (iv) Strengthen linkages with NGOs, CBOs, LGAs
- (v) Strengthen linkages with relevant ministries and Government agencies
- (vi) Strengthening access to and use of both printed and electronic information resources as well as the dissemination of research results and outcomes to a wider/global community

4.5 Development and Sustenance of Projects on long term Research Themes

Being a University responsible for matters of Agriculture, Natural Resources and related disciplines, SUA needs to develop and sustain a minimum of 10 projects on long term researchable issues guided by the vision and mission of the University. Such projects shall be funded by resources from Government subventions.

One project under each major discipline will be conducted under the auspices of the respective Dean/Director/Head of Department as the case may apply. Depending on the research focus areas detailed under Section four above as well as on the prevailing issues of national interest, such long term projects will be determined

The Dean/Director/Head of Department as the case may be, shall be responsible for putting up teams to undertake such research projects on a contract research mode, granted by Senate through the Board responsible for research

4.6 Monitoring and evaluation of research project activities

- 1) All research projects shall be monitored and evaluated to ensure scholarship in SUA's research undertakings and that research goals are achieved. Faculties and Institutes will hold Annual or bi-Annual scientific conferences where results of research activities in all departments will be presented. Funds for such conferences will be budgeted and approved for through Research and Publications Committees.
- 2) Annual progress reports and meetings of relevant committees will be used to monitor and evaluate research projects.
- 3) Where necessary, Faculty Committees will carry out independent evaluations during or at the end of the project.

5. GUIDELINES AND REGULATIONS

The following shall be rules and regulations governing research activities at SUA.

5.1 Application for research grants administered or funded by SUA

- 5.1.1 All research grants from various sources shall come under jurisdiction of the Board responsible for Research and Publications.
- 5.1.2 All research projects and/or activities conducted under the auspices of SUA and/or by staff of SUA must be duly registered with SUA and issued with an identifier registration number. This requirement shall apply regardless of the source and mode of funding.
- 5.1.3 All research grant applications shall be made using the prescribed format (Form for Application for Research Grant - Appendix 1)
- 5.1.4 All applications for research grants shall be submitted to the Research and Publications Committee through Faculty/Institute/Centre Research and Publications Committee and Faculty/Institute Boards with their comments on the following:

- (i) Relevance and importance of the research projects
 - (ii) Competence of the applicant to undertake it.
 - (iii) Any other matter which the Faculty/Institute Research and Publications Committee and Faculty/Institute Board think would help the Research and Publications Committee in making an appropriate decision on the application.
- 5.1.5 The Committee shall not consider any application from a person who is already in receipt of a grant from the same Committee, unless and until the Committee has already accepted satisfactory report on the previous grant.
- 5.1.6 The format for externally funded projects will depend on each individual donor format.
- 5.1.7 All grant Contract Agreements or Memoranda of Understanding between SUA and the donor/collaborating partner shall be approved by the Vice Chancellor upon recommendation by the Director responsible for research and publications. Procedures for approval of externally funded projects are presented in Appendix 1B).

5.2 Progress reports for Research grants

- 5.2.1 All research projects and/or activities conducted under the auspices of SUA and/or by staff of SUA shall be required to file in Annual Progress reports for the period ending June of each year. Such progress reports shall need to be received, discussed and approved by respective Faculty's/institute's Research and Publications Committees before submission to the Board of Research and Postgraduate Studies for onward presentation to Senate within the first quarter of the subsequent financial year.
- 5.2.2 For a project failing to submit annual progress report 3 months after the deadline shall have processing of the respective project funds suspended until such a report is submitted. This includes granting permission to travel outside SUA on such project activities.
- 5.2.3 In the case of SUA funded projects any balance of research grant not spent during the period for which they were awarded will not automatically be carried forward without the approval of the Research and Publications Committee.
- 5.2.4 Unless satisfactory reasons are given to the Research and Publications Committee, expenditure already incurred by an applicant on a research project before his application is approved shall not be reimbursed. Further, projects expenditure must be restricted to the approved budget.

5.3 Publication and dissemination of research results

- 5.3.1 All research grant recipients are required to publish and disseminate research results through media including scholarly articles, popular publications, public media and policy briefs. Researchers are therefore required:
- (i) To provide the Research and Publications Committee with two copies of off-prints of journal articles and conference proceedings, where the results of such research have been published or at least one copy in the case of other published work, such as books.
 - (ii) To ensure that acknowledgments of financial assistance from the University or other sources are included in an appropriate position in all published works.
 - (iii) To deposit all such publications with the Sokoine National Agricultural Library.
- 5.3.2 To ensure integrity in research and publications the University will formulate guidelines to:
- (i) Foster responsible attitude and conduct in authorship, review and publication of

scientific articles

(ii) Check and control fraud in science and other disciplines

Comprehensive guidelines for authorship, review and publication of scientific articles as espoused by the Vancouver Accord exist as a separate publication.

- 5.3.3 To ensure the sustainability of scientific journals hosted by professional associations affiliated to SUA, the University through the Research and Publications Committee shall allocate from its budget funds to partially support the production of such journals.
- 5.3.4 To ensure sustained circulation of such journals the Research and Publications Committee shall encourage respective professional associations to incorporate within their membership fees a token sum for supporting the subscription to journals

5.4 Equipment purchased from research funds

- 5.4.1 All equipment bought out of research grant (vehicles, equipment and any supplies) are the property of the University and shall therefore be entered in ledger books or lodged with the appropriate University authorities (i.e. Heads of Departments, Institute Directors, Deans of Faculties, Central Administration as the case may be) at the completion of the project for which they were bought. All research assets shall be under the jurisdiction of the University and the Vice Chancellor shall be the final authority on behalf of University Council.
- 5.4.2 All collaborative and externally funded research projects operating at SUA shall have a SUA academic member of staff as its leader. Such a leader shall be appointed by consensus among the collaborators or by the University upon recommendations of the Research and Publications Committee if the situation may so require.
- 5.4.3 All equipment including vehicles shall be utilized and administered according to general University regulations and guidelines for purposes of ensuring equitable access to the facilities by all researchers.
- 5.4.4 Project vehicles shall be used solely for research or other official duties and should be parked in areas approved by the University.
- 5.4.5 If and where necessary, permission to drive project vehicles by researchers should be sought and granted by University Authority.

5.5 Subsistence, Per-diems, other allowances, reimbursements and incentives

- 5.5.1 Payment of subsistence/per diem and other allowances to researchers shall be paid according to Government circulars/guidelines or according to the budgetary specifications of the respective grant as agreed upon by the funding agency. The option that offers the highest rate shall take precedence.
- 5.5.2 Relevant University regulations on employment of researchers, research assistants, academic and administrative staff members shall apply.
- 5.5.3 Remuneration and incentives policy and rates
- a) It is a policy of SUA that members conducting research are not paid salaries from their research grants. However, provisions may be made within the Contract Agreement for salary top-ups as a compensation for extra duty associated with the implementation of the

- project.
- b) Allowances for research activities will be paid to researchers as follows:
- i) Overnight/Per diem allowance for each night/day away from the duty station will be paid according to Government or donor approved rates/terms provided that the higher rate takes precedence.
 - ii) Research assistants, technicians and others shall be paid according to applicable Government rate.
 - iii) Similarly, payments including wages for occasional workers and casual labourers shall be paid according to Government circulars in force.
- c) A field allowance will be paid at half the above rates if the absence from the campus is more than six hours per day. An absence exceeding 12 hours shall be deemed to be an overnight stay out of duty station.
- d) An administration research allowance of at least US \$ 400 per month will be budgeted for every project with the consent of the donor to facilitate writing and submitting of progress reports on time.
- e) Incidental expenses to cover telephones, taxi, airport charges and others will be reimbursed upon submission of receipts.
- f) The cost of air travel within Tanzania and overseas will be paid at full fare economy rates payable directly to the airline against a pro-forma invoice or as re-imburement to the researcher upon presentation of airline boarding passes.
- g) Surface and marine transport fares will be paid at actual cost for each journey for the researchers, technicians and other assistants.
- h) Travel by vehicle will be reimbursed in the following way.
- (i) Taxi fares at actual cost where no other form of transport is available.
 - (ii) Where the vehicle is provided by an individual on a private basis, a mileage allowance of US\$ 0.90 per kilometre travelled shall be paid.
 - (iii) Where an institution or an individual external to SUA provides the vehicle, the rates in (ii) above will apply.
 - (iv) Where SUA or a government department provides the vehicle for research activities, the researcher shall pay a mileage charge of US\$ 0.45 per kilometre. Further, the user shall be responsible for fuel costs and subsistence allowance for the driver. In addition, a vehicle holding fee of US\$ 50 per day shall be paid on top of the mileage charges.
- i) Purchase of equipment will be at actual cost of invoice and when purchased overseas, the exchange rate at the date of payment will apply.
- j) Publication allowance of US \$300 will be paid per paper published in International peer reviewed journal to cover for the Mailing & other correspondence cost. Papers published in Journals hosted by institutions in Tanzania shall be reimbursed at a rate of US \$ 150. Such funds shall be paid to the Principal or Corresponding Author. Faculties/Institutes/Centres/Directorates and Departments from which the papers published originate, shall be paid US\$100 (for Faculty level) and US\$ 200 (for department/institute level where there are no departments under the institute) respectively if published in Journals outside Tanzania and at half that rate if the papers are published in Tanzanian Journals. Papers published in Conference proceedings shall not be eligible for such benefits.
- l) There shall be established a fund to promote publication of books by SUA academics. To encourage SUA academics to author and publish books a facilitation allowance shall be

paid to a prospective author or group of authors upon presentation of a comprehensive typewritten manuscript draft in form of a book. The allowance shall be paid to support retreats to aid in the process of upgrading and editing to prepare it for submission to a publishing house.

- The book publication grant shall be paid upon approval by Senate through respective research and publications committees at lump sum rate of US\$ 1,500 for a manuscript of up to 100 pages with a line spacing of 1 to 1.5 and font size 12. Additional pages with same line spacing and font size will be paid US\$ 15 per page.
 - The recipient of the allowance shall be required to have submitted the manuscript to the publishing house within 12 months upon receipt of the support. Should the recipient fail to submit the book manuscript to the publisher and received acknowledgement to that effect within this period will be allowed an extension of 6 months after which he/she shall be required to pay back the book production allowance (deducted from salary).
 - Upon successful publication and submission of a copy of the book to the Research and Publications Committee the author/authoring team shall be paid a publication allowance of US\$ 300 per unit that the book scores.
- m) In view of the fact that there is a general lack of books, writing compendia should be encouraged. A reviewed and printed compendium shall qualify for reward of US \$ 150 per unit

5.6 Professorial research chairs

Recognizing the need for Sokoine University of Agriculture to produce quality and relevant applied research results, the University encourages the establishment of Professorial research chairs within departments/institutes outside the normal establishments. The purpose is to implement activities of specifically funded research for a specified duration and terms of contract as highlighted in a publication on Policy and Procedures for Professorial Research Chairs.

Renowned scholars and scientists will be encouraged to develop projects, source funds from various funding agencies, foundations and industries to acquire professorial research chairs at SUA. In this respect SUA shall not use regular government disbursement as a source of funding for professorial research chairs.

5.7 Research Associateship Scheme

Sokoine University of Agriculture encourages and allows Research Associates external to the University and foreign scholars wishing to conduct research in Tanzania and at SUA. In order to obtain such associateship, researchers should apply to the Directorate of Research and Postgraduate Studies on prescribed forms indicated in Appendix 7 (Application for authorization to conduct research in Tanzania). The current fees for such associateship shall be stipulated upon request for application forms.

5.8 Research Associateship Guidelines

5.8.1 Introduction

Sokoine University of Agriculture (SUA) operates a research associateship scheme for Scholars wishing to conduct research at SUA.

The overall objective of the scheme is to improve the Socio-economic development of Tanzania through basic and applied research. Thus in some areas, SUA may suggest some alternative research projects or modifications of proposed projects to prospective researchers to ensure that academic, as well as national interests are safeguarded.

5.8.2 Qualifications

An applicant for registration as a research associate shall either hold a good Bachelor or Masters, or PhD degree, or an equivalent qualification from an approved institution of higher learning.

5.8.3 Registration

5.8.3.1 Requirements for a complete application are as follows:-

- (i) An application must be submitted to reach the University at least 4 months prior to the date the applicant intends to commence the research work to allow enough time for respective Research and Publications Committees to review and recommend to SENATE for consideration and approval.
- (ii) Four copies of concise statement of the proposed project, including: objective, description of problem area, methodology, expected output, the period of research and places in Tanzania where the work will be carried out.
- (iii) Confirmation of availability of financial support to cover travel, fees, research funds and up-keep allowances, and or any other material support to the intended research.
- (iv) Four copies of the applicant's full curriculum vitae.
- (v) Name of two referees who are qualified in the field of research which the applicant wishes to undertake.
- (vi) Name of contact person in the Department of intended study.

5.8.3.2 If the applicant meets the minimum requirements, research associateship will be awarded for a period ranging from a minimum of two months to a maximum of one year, depending on the applicant's request. Applications for periods of less than two months will be considered also, depending on the type of intended work.

5.8.3.3 Applications for renewal should be submitted to the University at least two months before the expiry of registration. For renewal, the following will be required:-

- (i) Renewal application forms fully completed.
- (ii) Confirmation of availability of funds to cover all the fees stipulated under section 5.8.4.1 below.
- (iii) Justification for continuation of the project.
- (iv) Submission of the report of the expiring period to the Research and Publications Committee

5.8.4 Fees

5.8.4.1 An application fee of US\$ 20, which is non-refundable, payable in cash, crossed cheque or bankers order to the University.

5.8.4.2 Successful applicants will be required to pay fees direct to the University before arrival or upon arrival at the University as follows:

Fees (Non-refundable) US\$

Registration (one time)	100
Administration (one time)	200
Bench fee for 12 months	960

5.8.4.3 Bench fee shall be charged according to the number of months of registration at the rate of US\$ 80 per month. This fee to be used by the Department hosting the candidate is designed to cover for the services to be offered by the department e.g. laboratory facilities (40%), contact persons fee (40%) and library services (20%). The other Research Associateship fees will be administered as will be approved by the University from time to time.

5.8.4.4 Applicants staying for periods of less than two months will be required to pay fees at half the normal rate, with exception of the application fee which will be paid in full and the bench fee which will be charged at the normal rate of US\$ 80 per month.

5.8.5 Research Budget

The research budget will be determined by the sponsor and/or the researcher. The University will have no obligation to administer such funds unless requested to do so.

5.8.6 Obligations of Research Associate

- (i) To report to the office of the Director, Research and Postgraduate Studies upon arrival and before departure, without fail.
- (ii) To be responsible to the Head of Department in which he/she is based.
- (iii) To participate in scholarly activities at SUA.
- (iv) To give a seminar at the end of the research period.
- (v) To submit a report and any publication at the end of the research period.
- (vi) To obtain an introductory letter from the Vice Chancellor for intended fieldwork outside SUA. Form letters are obtained from the office of the Director, Research and Postgraduate Studies.

5.8.7 Obligations of the Contact person

- (i) The contact person shall be appointed by the Head of Department and endorsed by the University-wide Research and Publications Committee.
- (ii) Ensure that the Research Associate prepare and deliver at least one seminar on the respective subject of research before his/her departure.
- (iii) Prepare invitations to seminar participants which must include members of the Research and Publications of the respective Faculty/Institute/department.
- (iv) Submit to the Director, Research and Postgraduate Studies through the respective channels, a progress report of the academic seminar.

5.8.8 Accommodation

Research Associates may either be accommodated in the University hostels, or may be assisted to find their own accommodation outside campus.

5.9 Ethics for Research

5.9.1 Background:

The Sokoine University of Agriculture gives high priority to research as one of the primary functions of the university community, in an endeavour to promote excellence as well as ethical responsibility in the search for and the creation, conservation and transfer of knowledge.

Sokoine University of Agriculture is committed to compliance of ethical conduct in all its research undertakings. Issues of ethics in research under consideration include conduct in handling research subjects and materials, observance of right to privacy or confidentiality, informed consent and publication of research results. SUA recognizes that Tanzania has established a number of Institutions to administer various aspects of ethics in research and development. Therefore SUA commits itself to cooperate with these institutions and also guide researchers and students to do the same. Researchers shall also be guided by the Research and Publications Committee ethics guidelines as well as the generally known “Vancouver Accord” and other University codes of ethics currently in force.

5.9.2 Research and Publications Committee:

This is a University-wide committee mandated to coordinate and guide the operations of research activities at the University and periodically give applicable recommendation to SENATE on matters related to research and publications through the Board. For the purpose of ethics in research, this committee has a responsibility of monitoring and evaluating compliance to ethical conduct of researchers undertaking research. Consequently the committee has also the responsibility of making recommendations to SENATE for action to be taken upon breach of research ethics.

5.9.3 Guidelines for Publication and Review of Scientific Papers:

A protocol of agreed standards and practices associated with creating, reviewing and publishing scientific papers as guided by the Vancouver Accord on “Uniform Requirements for Manuscripts Submitted to Biomedical Journals” as espoused by Vancouver group and progressively adapted by other disciplines to check and control fraud in science.

5.10 Administrative costs of grants

For grants solicited by individuals, departments or faculties/institutes, SUA will charge a mandatory flat rate of 10% (Resolution by 107th Council Meeting held on 18th December 2008) of the total grants to meet overhead costs of administering grants and contribute to infrastructural and capacity building at SUA. It shall be the responsibility of the prospective grantees to ensure that 10% grants administration fee is included in each grant disbursement. The Bursar shall be required to treat each disbursement as already including the grant administration fee. The fund will be monitored, administered and apportioned by the Directorate responsible for Research by following guidelines approved by the University from time to time.

5.11 Revenues from research projects and activities

Revenues generated from research activities such as sales of research produce and publication shall be administered as follows:

- a) For long-term projects, the existing Internal Income Generation policy in place which guides the apportionment and administration of the generated revenue shall apply.
- b) For short-term projects (not exceeding one year), based on small grants e.g. IFS grants, the income generated and assets acquired shall remain in the host department.

6. APPENDICES

6.1 APPENDIX 1: Format for Application for Research Grant

A. Internal Grants

1. Name(s) of researchers (s)
2. Nationality
3. Academic qualifications
4. Department/Faculty/Institute
5. Research Theme
6. Title of the research project
7. What has already been done; background
8. What remains to be done; definition of problem
9. Objectives of the proposed research project
10. Methodology and nature of the work
11. Expected results and importance
12. Probable duration of the project
13. Detailed budget and the amount requested from the Research and Publications Committee.
 - a) Equipment and other materials
 - b) Travel (mileage based on approved rates).
 - c) Subsistence (use current rates)
 - d) Others (specify the items and their costs)
14. Are you in receipt of a research grant from the Research and Publications Committee or from any other sources?
15. Names and addresses of two referees
16. Declaration of the application:

I/We the undersigned have read and understood the Rules and Regulations governing the granting of research funds by the University and undertake to abide by them if my/our application is successful.

Remarks by Project Leader

Date: _____ Signature: _____

Remarks by the Head of Department:

Date _____ Signature _____

Remarks by the Faculty/Institute/Centre Research and Publications committee:

Date: _____ Signature: _____

Remarks by the Faculty/Institute/Centre Board:

Date _____ Signature: _____

Remarks by Research and Publications Committee

Date _____ Signature _____

Remarks by the Directorate Research and Postgraduate Studies Board

Date _____ Signature _____

B: External Grants

1. Submission of the proposal to the Director responsible for research and publications should be done at least 5 working days before the deadlines.
2. Approved proposals will be issued with letter of support or grant agreement will be signed by the Vice Chancellor.
3. Research proposals to be approved should conform to SUA's research focus areas and guidelines.

6.2 APPENDIX 2: Criteria for Selecting Research Projects for Funding

Research grants will be awarded on competitive basis. There will be calls for research proposals upon availability of funds. Below are the selection criteria for proposed projects.

- i. Relevance to SUA Research Focus areas
- ii. Consistency with the Research Focus and expected outputs.
- iii. Applied research and/or basic research where similar studies have not been conducted
- iv. Multidisciplinary – multidisciplinary projects will be more encouraged
- v. Consideration of relevant cross-cutting issues
- vi. Cost-effectiveness
- vii. Policy relevance

6.3 APPENDIX 3: Review and awarding procedures for research Concept Notes/Proposals

- i. There shall be calls for concept notes. The concept notes will be evaluated based on set criteria. The winning ones will be recommended for full project proposal development.
- ii. Review of concept notes and full proposals will be judged by an independent panel of at least 3 experts in the field.
- iii. The criteria for review will be made in direct reference to the information provided in the call.
- iv. Where a call invites participation from a diversity of discipline/institutions, it will be the duty of the research and publication committee to ensure equity in the allocation of the grants across the participating discipline/institutions.

6.4 APPENDIX 4: Format for Research Project Registration

Title of the project:		
Name of the Project leader:		
Collaborating researchers and departments of affiliation:	1. SUA researchers: 2. Others:	
Starting date:		
Duration:		
Expected date of completion:		
Project's Main objective		
Research target sites		
Sponsor/Funding Agency:		
Total budget:		
Annual disbursement:		
Signature of Project leader:		
Date:		
	Remarks	Signature
Head of Department:		
Date:		
Dean/Director:		
Date:		
Director RPGS:		
Date:		
Registration number (To be issued by the office of the Director, RPGS):		

Sponsor	
Total budget	
Project output to date:	
(i) Publications in journals	
(ii) Workshop/Conference papers	
(iii) Submitted papers	
(iv) Dissertation and theses	

6.7 APPENDIX 7: Format for Clearance for Conducting Research in Villages/Wards/Districts

(i) *Swahili version*

CHUO KIKUU CHA SOKOINE CHA KILIMO OFISI YA MAKAMU WA MKUU WA CHUO

Kumb:.....

Tarehe:.....

Prof./Dk/Bw./Bi.....

UTAFITI WA WAALIMU NA WANAFUNZI WA CHUO KIKUU

Madhumuni ya barua hii ni kuwatambulisha/kumtambulisha kwako

Ndugu:

.....
ambao/ambaye ni mtafiti/watafiti/mwalimu/walimu/mwanafunzi/wanafunzi wa Chuo Kikuu cha Sokoine cha Kilimo. Huyo/Hao ndugu hivi sasa yumo/wamo katika shughuli za utafiti. Kufuatana na waraka wa Serikali wenye kumbukumbu namba MPEC/R/10/1 wa tarehe 7 JuIai 1980 na Hati Ridhia ya Chuo Kikuu cha Kilimo, 2007, Makamu wa Mkuu wa Chuo alipewa madaraka ya kutoa vibali vya kufanya utafiti nchini kwa Waalimu, Wanafunzi na Watafiti wake kwa niaba ya Serikali na Tume ya Sayansi na Tekinolojia. Hivyo basi tunaomba uwapatie/umpatie Wataalamu/ Mtaalamu waliotajwa/alijetajwa hapo juu msaada/misaada/atakaohitaji/watakaohitaji ili utafiti wake/wao uweze kufanikiwa. Gharama za utafiti, malazi na chakula chake/chao pamoja na usafiri wake/wao atalipia/watalipia mwenyewe/wenyewe. Msaada anaohitaji/wanaohitaji zaidi ni kuruhusiwa kuonana na viongozi na wananchi ili aweze/waweze kuzungumza nao na kuwauliza maswali aliyo/waliyo nayo na kufanya shughuli nyingine za utafiti.

Utafiti wake/wao ni juu ya

.....
.....

Sehemu anazofanyia/wanazofanyia huo utafiti ni.....Ikiwa kuna baadhi ya sehemu ambazo zinazuilika ni wajibu wako kuzuia zisitembelewe.

Muda wa utafiti huo ni kuanzia tarehe..... Hadi

Ikiwa utahitaji maelezo zaidi wasiliana na Makamu wa Mkuu wa Chuo.

MAKAMU WA MKUU WA CHUO

Nakala kwa mtafiti/watafiti

(ii) *English version*

**SOKOINE UNIVERSITY OF AGRICULTURE
OFFICE OF THE VICE CHANCELLOR**

Ref:.....

Date.....

To:

.....
.....

**RE RESEARCH BY RESEARCH ASSOCIATES, STAFF OR STUDENTS FROM SOKOINE
UNIVERSITY OF AGRICULTURE**

The main purpose of this letter is to introduce to you

Prof./Dr./Mr./Mrs/Ms.....
who is/are Research Associate(s), staff(s) or student(s) of Sokoine University of Agriculture. The individual(s) mentioned above is/are planning to undertake research activities in your areas. With reference to Government Circular No. MPEC/R/10/1 of 7 July 1980 and the SUA charter of 2007 the Vice Chancellor is authorized to issue permit(s) for undertaking research in the country to University staff, student(s) and Research Associate(s) on behalf of the Government and Commission for Science and Technology.

I therefore request that this/these expert(s) mentioned above be given the necessary assistance so that he/she/they can accomplish his/her/their research undertakings. Accommodation, food and transport costs will be paid by himself/herself/themselves. The main assistance he/she/they need(s) is permission to meet different people so that he/she/they can interview them.

The main objective(s) of the research is/are

.....
.....

The areas selected for conducting research are:

.....

If there are restricted areas, it is upon you to restrict this/these researcher(s) from visiting them. The expected date of commencement isup to

If there are any queries, please contact the Vice Chancellor, Sokoine University of Agriculture, PO Box 3000 Chuo Kikuu, Morogoro, Tanzania.

Signed

.....

VICE CHANCELLOR

cc: Researcher (s)

6.8 APPENDIX 8: Application for Authorization to Conduct Research in Tanzania

1. Surname: _____ Other names: _____
Nationality: _____
Qualifications: _____
2. Institution of affiliation (to attach letter of recommendation): _____
3. Source of funds (to attach letter of approval): _____
4. Estimated period of research: Start date, Completion date.
5. Field and topic of research _____
6. Research objectives _____
7. Location of research (e.g. Region, District, etc.) and duration of stay in each location.
8. Access sought:
 - a) Public records: Yes/No
If Yes which records: _____
 - b) Interview with Government Officers: Yes/No
If Yes which classes of Government Officers? _____
 - c) Interview with members of the Public: Yes/No
If Yes, on what subjects, where and how will they be selected? _____
9. Please, attach:
 - (a) Short description of your research proposal of one page in length (3 copies)
 - (b) Your curriculum vitae (3 copies)
 - (c) Name and addresses of three referees
 - (d) Home contact person and address in case of emergency
10. Declaration by applicant(s):
I have read and agree to abide by the regulations and guidelines for research associateship if my application is approved. I also abide to conduct myself with discretion while in Tanzania.

Signature:

Date:

11. FOR OFFICIAL USE ONLY

- (a) Recommended/not recommended by the Board of the Faculty/Institute of _____
- (b) Local contact person(s) nominated: _____
- (c) I confirm that this application has been recommended for approval by the Board of the Faculty/Institute/Centre of _____

Signature (Dean/Director): _____

Date _____

- (d) Recommended for approval by Research and Publications Committee:

Signature (DRPGS): _____

Date _____

- (e) Approved by Senate

Signature (Vice Chancellor): _____

Date _____

Please note that:

- (I) *Applications must be submitted at least four months prior to the intended period of commencement of research.*
- (II) *Applicants should not arrive in Tanzania before receiving a letter from the University, formally according them the status of Research Associate-ship.*

6.9 APPENDIX 9: Format for Research Associate's Report to DRPGS

1.	Name of Research Associate	
2.	Registration Number	
3.	Institution of affiliation	
4.	Approved date for research commencement	
5.	Approved date of end of associateship	
6.	Actual date of research commencement	
7.	Research topic	
8.	Research objectives	
9.	Summary of activities undertaken	
10.	Seminar presentations: Chairpersons, topics and dates	
11.	Actual date of completion	
12.	Summary of accomplishments	
13.	Signature of the candidate:	
	Date	
14.	General comments and recommendations by the Contact person	
15	Name and Signature of the Contact person:	
	Date	

This report should be submitted quarterly, i.e. end of March, end of June, end of September and end of December OR at the end of stay for candidates staying for less than three months

6.10 APPENDIX 10: Criteria for Selection, evaluation and Award of “Researcher of the Year Award” (Category One: Excellence in Research)

- 6.10.1 The University-wide Committee responsible for Research and Publications will lead the exercise of selection and evaluation of a researcher of the year (“**Edward Moringe Sokoine Memorial Researcher of the Year Award**”). Around July each year, each academic department/Institute/Centre will be required to identify one name to be submitted to the committee for consideration for the award. Identification will be based on:
- (i) The number of research projects one is involved in and the exhibited level of active participation (leadership in the project, conduction of studies and overall participation in the project activities) (1.0 point each for leadership and 0.2 for membership)
 - (ii) The number of students supervised (PhD: 1.0, Masters: 0.5 and undergraduates: 0.2 points each)
 - (iii) The number of publications, considering the type: peer reviewed journals, articles in book(s), conference proceedings, bulletins etc. Assignment of points for each publication will follow the one used for promotion.
 - (iv) The number of presentations made by the candidate e.g. at conferences, seminars etc. (0.5 point each)
 - (v) The number of accepted research proposals (1.0 point each)
 - (vi) The number of popular publications (0.5 point each)
 - (vii) The number of new innovations and indication for adoption (2.0 point each)
- 6.10.2 For easiness of the exercise, the level of authorship will not be considered but the departmental committee may wish to establish from the project team, the extent of contribution of the candidate in all of the multi-authored publications where more than one candidate seem to tie up for the total number of points.
- 6.10.3 Upon receiving the names from the departments/institutes/centres the research and publication committee will convene to select the winner of the award. The committee will eventually write to the winner to congratulate him, invite him for the award, providing information about the time and venue for the award event. This will normally be in accordance with the prize giving ceremony which takes place during the graduation and convocation seasons.

6.11 APPENDIX 11: Criteria for Selection, Evaluations and Award of “Researcher of the Year Award” (Category two: Best Researcher in attracting research Grants to SUA)

- 6.11.1 All research projects at SUA will be registered soon as the contract agreements are signed. The total amounts of project funds will be recorded for each registered project. Making reference to the period 1st July to June 30th of two adjacent years, a project whose contract agreement will have been signed within the period happening to have attracted the highest amount of funds will qualify for the award. The Research and Publication Committee will have to satisfy itself that the award goes to the right candidate by having gone through the list of all registered projects at SUA. Seniority will not matter as far as this award is concerned. A junior researcher attracting the highest amount of research funds will get the award just like for the senior researcher.

- 6.11.2 The value of the award (shared among the project team members that will have participated in putting up the project proposal) will be according to what is indicated in the Up the Ladder. In case where the award goes to a project developed by a team, the team leader will represent the team in receiving the award at the awarding ceremony.
- 6.11.3 For University-wide programmes such as TARP II SUA, FOCAL, PANTIL or CCIAM, research projects under the programme will not be considered for the award. Individuals initiating and preparing proposals for such programmes may be remunerated but not as under the “Researcher of the Year Award” scheme.

6.12 APPENDIX 12: Criteria for Selection, Evaluations and Award of “Young Researcher of the Year Award”

- 6.12.1 The young researcher of the year award shall be awarded to junior staff (**Assistant Lecturer/Assistant Research Fellow/Assistant Librarian and Lecturers/Research Fellows/Librarians**)
- 6.12.2 The procedure stipulated under 6.10 shall apply *Mutatis mutandis* in relation to selection of the Young Researcher of the Year