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Prof Dr. agra. Stephen Gaya Agong, BSc. MSc, PhD

1. Bio data

Full name: Stephen Gaya Agong
Marriage: Married with four children
Citizenship/Year of Birth: Kenyan/1960

2. Current position: ***Vice-Chancellor****, Jaramogi Oginga Odinga University of Science and Technology and* ***Professor of Horticulture****.*

3. Profession: Horticulturalist

4. Executive summary on the qualifications and experience

Ø Academic qualifications and experience

- I hold a BSc, MSc (University of Nairobi) and PhD (Agricultural Sciences), Justus Liebig University Giessen, Germany; and Post Doctoral Research training at Hannover and Okayama University, Japan.
- I have been conferred Matsumai International Fellowship for Peace Award.
- I have over seventy manuscripts published in internationally peer-reviewed journals.
- I am a member of many professional organizations among them being International Society of Horticultural Science (ISHS). A member of various college/school boards.
- A fellow of the African Academy of Sciences.
- I have been described as a net-worker per excellence by my former sponsor, German Academic Exchange Service (DAAD) for the MSc and PhD programmes as outlined in http://www.daad.de/alumni/en/adm/adm_2005 _05.html link and a committed university teacher, researcher, trainer, leader and manager.
- I pride myself for having been exposed to national, regional and international research, mentorship, and academic leadership.

- I maintain and cultivate international contacts, bring people with common interest in science together and completely dedicated to human resource development and the promotion of university education, knowledge economy, science and technology in Africa.

Ø Professional experience

- I have over 30 years of experience in education, training, research, science, technology, policies, management and leadership at the University level and worked as a full Professor of Horticulture with long scientific standing and reputation in the field of horticulture and urban food security.
- I commenced my carrier as a Forage Breeder and Officer-In-Charge Sheep and Goats Development Project, Ministry of Agriculture (1987) before joining JKUAT as lecturer in 1989.
- I got promoted through the ranks at JKUAT up to the level of Associate Professor and currently a full Professor of Horticulture at Maseno University.
- I had a chance to serve at JKUAT in various administrative and leadership capacities as well as well as positions of great responsibilities, namely: Head of Department of Horticulture (1996-1999), Acting Dean Faculty of Agriculture (1998), Director, Institute for Energy and Environmental Technology (2000-2001), and Deputy Vice Chancellor (Administration, Planning and Development) (2001-2006). Upon the expiry of the 5-year term as DVC (APD), at JKUAT in February 2006, I joined African Academy of Science as the Executive Director (2006), a position I held till my appointment as the Deputy Vice Chancellor (Planning, Research and Extension Services), Maseno University (2007). In January, 2009, I was appointed the Acting Principal of Bondo University College (A Constituent College of Maseno University), a position I held substantively by appointed through a competitive bidding process in September 2009 till Feb 2013 when the BUC was upgraded to a full-fledged University status. February 2013 to June 2013 I was the Acting Vice-Chancellor, JOOUST. Previously, I had been assigned responsibilities as the Acting for Vice-Chancellor on various occasions both at JKUAT (2001/2005) and at Maseno University (2007/2008) whenever the substantive Vice-Chancellor was out of station or on leave. Since June 2013 serving as Vice Chancellor, Jaramogi Oginga Odinga University of Science and Technology (JOOUST).

5. Key achievements as Vice Chancellor of JOOUST to date

- As Vice-Chancellor JOOUST, I offer innovative, visionary and dynamic leadership through taking charge of the University. I have been instrumental in keeping good order in the University on behalf of the Council. I oversee all the operations within the University on behalf of the Council. I do chair Senate the quality assurance organ in the University as well as the University Management Board. The University has continued to grow in student population. Currently the students number stands at well over 13,000 from 3,729 in 2013. In the research, I have significantly enriched the research menu by winning big grants namely: World Bank funded grant to establish African Centre of Excellence for Food Security with focus on sustainable use of edible insects as food and feeds; Grassroot Financial Innovation and Entrepreneurships by DANIDA, Sustainable Urban Development funds by Sida, Sweden; Consuming Urban Poverty Project by DFID/ESRC, UK and Nourishing Space Project by CIDA, Canada among others. Whereas in terms of outreach, I have consistently led JOOUST Enactus Team into being national champion twice and participated at the global stage in the USA twice among others. I introduced the cage fish technology that is popular with the community around the University in 2014 and is currently a source of livelihood of many fisherfolk.

- As the Vice-Chancellor JOOUST, I continue to offer innovative, visionary and dynamic leadership through taking charge of the newly established University. I have been instrumental in keeping good order in the University. I played an important role in generating the Charter that led to the establishment of the University. I successfully established the essential administrative structures and organs of the University. I have overseen the admission of the students whose number currently stands at 13,729 full time students at the University. In addition, I have developed and executed Performance Contract (PCs) mutually agreed between myself and the Council the latest being the one for 2017/2018 FY. I worked hand in hand with the University Council, Management Team Members and other staff members and ensured that the University has remained a going concern. By providing the University the requisite secretariat, the Council has continued to offer oversight roles as required and the essential Council Committees established; Overseen the development of the JOOUST Statutes and policies for the operationalization of the University Act 2012 in the context of JOOUST Charter 2013. In summary, the following are key milestones in the first term of my leadership and management:

- Established a fairly strong faculty and research system that drive and attract national and international grants. I am certain that given a further opportunity this will significantly be enhanced and improved for the good of the institution.

- Through the networks established with my effort and support from stakeholders, the University has become competitive at local, national, regional and international levels via robust research and scholarly engagement with other universities and institutions. Out of the networks, one of our young researchers was invited by UNESCO and decorated with an award for young women scholars, the only one from Kenya to receive the award in Johannesburg this year. Hence JOOUST has become a beacon of science and technology as espoused in the strategic plan.

- The University has experienced predictable academic calendars since the grant of Charter without any interruption despite several occasions of industrial disputes and strikes. In the last industrial dispute, JOOUST remained on course due to good leadership, management and support from the Council.

- Through my leadership and management, the University has grown in student numbers from 3,729 in 2013 to the current number of well over 13,000.

- The University has expanded and with the support of the Council acquired own premise in Kisumu. Following the accreditation of the JOOUST Campus in 2016 by the Commission for University Education (CUE), an Acting Campus Principal has since been appointed. With the acquisition of the property, my vision is have a JOOUST Twin Tower on a PPP funding mode for the Campus. The Campus strategic location of the Campus is ideal for an Innovation and Incubation Hub of the University. Apart from Kisumu Campus, the University has also grown by establishing other Campuses (Nambale and Kisii). The Constituency leadership in Nambale donated land to the University for purposes of establishing the Campus. Both Kisii and Nambale are yet to be accredited by the CUE.

- The recurrent budget has grown from KShs 400Million to KShs 831Million with the support of the Council and our parent Ministry. Being a science and technology based, the full implementation of the Differentiated Unit Cost (DUC) will certainly improve the recurrent grant. Similarly, JOOUST focus on food security with direct link to Lake

Victoria on the edible insect is indeed for a blue ocean and the University will thrive on this for greater resource mobilization and income generation.

- In terms of infrastructure, the flagship laboratory project is being handed over by 20th Jan 2018. Upon completion and handing over, the full utilization of the facility will be of great value to the University. The modern laboratory facility for research and teaching offers space for 24 modern teaching and research laboratories (on ground, first and second floor), two specious offices for the senior management staff with associated support functions, offices and workstations for over 100 lecturers and two spacious boardrooms (Council and Senate Parlors), all on the third floor. There are also four specialized professorial research rooms provided for in the facility on each of the four apexes in the facility.

- The University recently won competitively World Bank Grant worth KShs600 Million to be released in installments over the next five years. The first tranche of Kshs111 Million was received in June this year. Notably, JOOUST is one among the only three universities in the whole country that won the grant from well over seventy universities that participated in the grant application. It is my commitment of putting even greater effort to secure more international grants with focus on talent development, management and mentorship of the researchers in the University. Apart from the World Bank grant, we have also received various funding from both national and other international agencies. This financial year, we have also won infrastructure grant of about KShs100 million, multi-disciplinary, multi-institutional grant of KShs20Million and several postgraduate scholarships (PhD and MSc) from the National Research Foundation. I have continued to receive grants for PhD scholarship from Mistra Urban Futures out of which six PhD candidates have graduated thus improving the faculty strength in the University.

- I have nurtured warm relationship with the community for the good of our University. Most of our students are accommodated within the immediate community. It is my commitment to continue with the promotion of harmonious co-existence with the community as the founding Vice Chancellor thus establish a rich culture in the society. Stakeholders' management is key to the success of a university that is situated right within the rural neighbourhood. Due to the warm relationship with the communities, the University has received land donations (Achiego - 42 acres, Miyandhe - 35.6 acres, Muhoroni - 6 acres, Kapiyo - 21.5 acres, Nyangera - 7 acres, Mahaya - 12.25 acres Oboch - 1acre and Siaya - 3acres). Except for Achiego, Miyandhe and Mohoroni, the rest of the donations are yet to be finalized in terms of release of title by the County.

- Through the innovation in cage fish farming to boost food security in the region, most communities in Usenge have adopted the technology and are able to supply and generate revenues toward sustenance of their livelihood.

6. Specific responsibilities as Vice Chancellor

- As the Vice Chancellor, I am the administrative and academic head of the University as well as the Chief Executive Officer of the institution as well as being the Secretary to the Council. Additionally, the following are my functions as enshrined in the University Act 2012 (read Amended 2016), JOOUST Charter 2013 and JOOUST Statutes 2013:

  (a) I have the overall responsibility for the direction, organization, administration and programmes of the University and the main advisor to the Council on the overall financial health, human resources and facilities for quality education, research and outreach.

  (b) I am responsible to the Council for the general conduct and discipline of the staff and students;

  (c) I have such powers and duties as may be provided by the JOOUST Charter and Statutes. Similarly, I am responsible on behalf of the University Council in the:

  - Implementation of the Council's decisions in a result oriented and timely manner to achieve the University's goals, objectives and agreed targets.
  - Providing effective leadership and direction to ensure that the University attains a high level of competitiveness and achieves its objectives;
  - Advising the Council on development needs of the University and ensure timely preparation of annual plans and estimates as well as prudent management of the finances.
  - Playing a key role in the facilitation and maintenance of linkages with other institutions of higher learning.
  - Executing any other responsibility deemed necessary to achieve the University's mandate.

I am currently providing effective leadership and direction to ensure that the University attains high level of competitiveness as well as achieving the laid objectives as outlined in the JOOUST Charter, 2013. I am also attending to the development needs of the University through mobilization of resources from within the country and internationally. I have initiated strong institutional links with Cape Peninsula University of Technology, South Africa and Rostock University, Germany; Chalmers University of Technology.

Specifically as the VC the following are key responsibilities:
i. I am the Accounting Officer with whom the bucks stops.
ii. I am responsible as provided under Section 39(2) of the Act and other relevant legislations, regulations and circulars issued from time to time.
iii. I ensure that obligations under the Public Procurement and Disposal Act, 2015 are complied.
iv. I am the Chairperson of such Management Committees provided for in the Charter and the JOOUST Statutes, 2013.
v. I represent the University nationally and internationally.
vi. I oversee the efficient management of University resources, both human and material.
vii. I oversee the development of proposals on University Policies to Senate and Council for approval.
viii. I prepare and table annual estimates and performance reports to Council for approval.
ix. I authorize the initiation of legal proceedings or defend or compromise legal proceedings in the name of and on behalf of the University.
x. I make proposals on establishment of any University charges and fees to Council.
xi. I am responsible to Council for management of finances of the University.
xii. Provide leadership in performance based management through performance contracting.
xiii. I submit proposals on public-private partnership to Council.
xiv. I am the Secretary of Council as provided for in the University Act 2012 and JOOUST Charter and Statutes.
xv. I have responsibilities and undertake duties as stipulated under the Public Finance Management Act, 2015.
xvi. I oversee corporate social responsibility.
xvii. I undertake such other responsibility as may be assigned or delegated.

c. Specific duties include but not limited to:-

i. Submission of reports to Council on the following areas:

a) Academic and student matters;

b) Administrative matters;

c) Financial status;

d) Infrastructure and physical development;

e) Development plans;

f) Resolutions of Council decisions;

g) Procurement implementation process;

h) Strategic direction of the University;

i) Emerging opportunities and status of development of projects;

j) Staff establishment;

k) Research and community outreach projects and plans.

l) Statutory recommended progress reports;

ii. I also submit proposals to Councils on the following:-

a) Policy formulation;

b) Budget estimates;

c) Procurement plans;

d) Infrastructure and physical development;

e) Development and strategic plans;

f) Biannual promotions reports;

g) Biannual review of staff appraisals;

h) Any other that shall be required by Council.

iii. Oversee satisfactory performance of the University.

iv. Make proposals on viable programmes for enhanced performance.

v. Oversee relevant expansion, innovation and implementation of academic Programmes.

vi. Coordinate University's corporate strategies and development plans.

vii. As the VC, I may from time to time be assign or delegate any duties to a Committee or a member of the University staff and may withdraw any such assignment when deemed necessary.

viii. As the Vice-Chancellor, I have such other powers and duties as may be conferred upon by the Council as well as prevailing legal and policy regulatory framework

7. Experience and achievements serving in other leadership positions

- As the Principal of Bondo University College, I offered innovative, visionary and dynamic leadership through taking charge of the newly established University College. I have been instrumental in keeping good order in the college. I played an important role in generating the draft Legal Order that led to the establishment of the University Constituent College. I have successfully established the essential administrative structures and organs of the University College. I have also overseen the admission of the first group of Government sponsored students. I developed and executed the first performance contract for the period 1st July 2009 to 30th June 2010 for BUC with a subsequent 2nd and 3rd Cycle contracts being implemented under my direct leadership and supervision as the Chief Executive Officer with the support of the Council playing key role in oversight. For three years consecutively, JOOUST (formerly BUC) has had audit query free financial statements with unqualified audit reports a demonstration of prudence, adherence to the tenets of good governance and integrity. I have run clean financial administration.at JOOUST since its inception as well as other previous places that I have worked in.

- As the Deputy Vice Chancellor in-charge of Planning, Research and Extension Services at Maseno University I offered innovative, visionary and dynamic leadership through taking charge of the division. I had been also instrumental in Chairing the Tender Committee of the University and facilitated and developed the tendering process to be in compliance with Procurement Oversight Authority requirements, regulations and procedures.

- I navigated the process that resulted into Maseno University signing an MOU with Bondo TTC which finally provided the platform for the launch of the School Based Undergraduate Degree Programmes in 2008 thus giving way for the establishment of the Bondo University Constituent College.

- I continued to provide leadership in the exhibition for both universities' and Kisumu show where we have exceptionally done well wining several trophies.

- I continued to spear head the search for credible collaborating partners, like Chalmers University of Technology through which Maseno has already been recognized as a UN-Habitat Partner University.

- As the DVC (APD) at JKAUT, I saw the University grow beyond expectations with respect to quality human resource, financial position and infrastructural expansion. I was directly in charge of human resources, financial and physical development of the university. The construction of the sports field (2001) marked the turning point, followed by Science Complex (2001) and IEET block (2002). Later (2003 - Nairobi Centre; 2005 - Hall 7, Science Complex Lecture Theatres; acquisition of Karen Campus; and 2006 - Science Complex Laboratories) are indicative of the infrastructural expansion that took place under my tutelage. These major achievements had been possible as a result of the innovative construction approach by use of internal university's capacity which I first introduced as an experiment in 2001. The approach has widely been acknowledged as efficient and cost effective by the Ministry Roads and Public Works. In all these activities the University did not only realize substantial savings of about 40% (of would be market cost) but also directly build on the human resource capacity (staff and students alike).

- Conceived, contextualized and raised funds for the development of the University's payroll system (pManager) at JKUAT in 2002/2003. This creation continues to serve and save the University well over Ksh200, 000.00 per month. This was done on the basis of my project funded by the FORD Foundation.

- Proposed and justified the university's harmonized house allowance for JKUAT staff which subsequently received the Ministry of Education endorsement and Parliamentary approval in 2001. In 2004 the government extended the application of similar rates to the other public Universities.

- The JKUAT's Capitation and Appropriation in Aid were Ksh450 and Ksh20 Million per year in 2001, respectively as at the time of my appointment. This situation significantly changed through prudent financial management, collection of revenue and allocation of the resources for the various cost centers for maximization of productivity with focus on cost minimization. AS of February 2006 when my term as DVC (APD) ended, the University was already enjoying capitation of Kshs711 and Income Generating Unit (IGU) revenue of Kshs400 Million per year, respectively.

- Established the African Academy of Sciences Headquarters' Building in Karen, (2006); developed the strategic plan, financial and personnel policy instruments as well raised the AAS profile within Africa, Europe, America and Asia.

- Founded the Horticultural Association of Kenya (HAK) in 2001 by leading its conception and registration process.

- Consolidated funds for Plant Breeders Association of Kenya (PBAK) while serving as the Secretary General.

- Leading research, training, guiding, mentoring and supervise undergraduate as well postgraduate students. Currently, I have three PhD Students at JOUST on scholarship through my project on Mistra Urban Futures. Similarly, I have 2 Ph.D. (Germany and Japan) and 2 MSc (JKUAT) students. In 2007, my students [PhD (2) and MSc (2)] graduated. This year alone, publish in refereed journals latest being accepted in 2007 (3) and one manuscript has so far been accepted this year 2008.

- Involved in various community services (Mistra Urban Futures for sustainable urban development with Kisumu and its' environ for purposes of advancing livelihoods of the communities within Kisumu and its environ. In particular, I spear heading the projects on urban food security and nourishing space with funding from IDRC and Sida with four PhD students benefiting from the funds; UNESCO Micro Science Kit for Secondary Education; FAO on descriptors for practices horticultural technicians and farmers; USAID- Global Horticultural Initiative as Expert, Regional Group Training Program- Arusha, Tanzania as Consultant; HCDA- Consultant).

- I have continued also to participate in national, regional and international conferences thus not only giving me global visibility as well as scholarship but also the enriching the University's image at large. Other community projects and services include 1.) Establishment of sustainable agricultural production and school feeding system in Kanyadhiang, Karachuonyo District; 2.) Founding and being founder Chairman of Horticultural Association of Kenya (HAK), 3.) Being member of and Secretary General to the Plant Breeders Association of Kenya (PBAK) both for the purpose of revitalizing the agricultural sector as an essential ingredient for industrialization via the necessary value addition processes.

8. My vision for university education, research and outreach

- To provide intellectual, scientific, professional, management and leadership at the University and associated institutions of research, innovation and development for the good of humanity.
- To lead in the change and transformation process in all facets of the university education, research and outreach by systematically introducing hands-on as well as result based management in realizing the quality corporate leadership that is founded on intellectual honesty with key principal pillars being fairness, transparency, responsibility and accountability.
- Provide visionary leadership, effective management and the necessary environment that will stimulate optimal, efficient and quality service delivery in the furtherance of a strong vision for the university education, research and innovation. The assurance to the Council is that, I shall effectively lead and direct efficiently the functions at the University. I shall also maintain and promote the efficiency and good order of the University. I shall work with all organs of the University namely, Council, Senate and Management, to stimulate effective co-ordination, preparation and implementation of strategic plan of the University; and preparation of short term as well as long term development plan geared towards the strengthening the University and establishment of new instrumental systems for promotion of scholarship at the University. I shall also work in close consultation with the Chancellor and the Parent Ministry, Ministry of Higher Education, Science and Technology among others to steer head greater productivity in the University. I am confident that my knowledge, skills, expertise, experience, energy, vision, trust, honesty, transparency, accountability, integrity, productivity, self-motivation, professionalism, hard-work, passion to succeed, capability to form and sustain teams, management and leadership will go along way in ensuring that the University intellectually thrives in the core functions of training, research and community service with focus on:
- systematically strengthening and expanding effective relationships with credible partners nationally, regionally and internationally.
- systematically modernizing teaching facilities with the support of stakeholders.
- ensuring that developmental projects for the University are carefully selected and managed prudently for the good of the University and the entire University fraternity.

- leading the overall resource mobilization in support of the college activities.
- ensuring effective and efficient corporate governance and develop a working environment that would promote accountability at all levels of the University operations.
- initiating and sustaining international linkages with a view to enhancing academic, research and community service quality.
- expanding the access to the University programmes via modern information communication technology (ICT) strategies. In particular, e-learning modes, distance education and video-conferencing arrangements would be promoted.
- setting up an effective Management Information System (MIS) for the University with focus on student related functions (application, admission, registration, accommodation, examination processing and transcript processing), administrative related function (payroll, leave, appraisal, recruitment and general communication), financial related functions (accounts, payments, revenue, procurements, fixed assets, salaries and stores) taking cognizance of the modern ICT systems.

9. Current salary per month

- As approved by the Council in consultation with the relevant institutions.

10. Key responsibilities as the Principal, BUC

- I was the administrative and academic head of the University College as well as the Chief Executive of the institution. Additionally, the following were my key functions as enshrined in the University College Legal Order No 56 of 2009:

(d) I have the overall responsibility for the direction, organization, administration and programmes of the University College;

(e) I am responsible to the Council for the general conduct and discipline of the staff and students;

(f) I have such powers and duties as may be provided by the JOOUST Charter and Statutes. Similarly, I was responsible on behalf of the University College Council in the:

- Implementation of the Council's decisions in a result oriented and timely manner to achieve the University's goals, objectives and agreed targets.
- Providing effective leadership and direction to ensure that the University attains a high level of competitiveness and achieves its objectives;
- Advising the Council on development needs of the University and ensure timely preparation of annual plans and estimates as well as prudent management of the finances.
- Playing a key role in the facilitation and maintenance of linkages with other institutions of higher learning.
- Executing any other responsibility deemed necessary to achieve the University's mandate.

- I provided effective leadership and direction to ensure that the University College attains high level of competitiveness as well as achieving the laid objectives as outlined in the Legal Order. I am also attending to the development needs of the College. I initiated strong institutional links with Cape Peninsula University of Technology, South Africa and Rostock University, Germany.

11. Key responsibilities as the Deputy Vice Chancellor (Planning, Research and Extension Services)

- Principally, I assisted the Vice Chancellor in the day to day running of the University and in particular directly heading the Planning, Research and Extension Services Division of the University with the following core functions under my tutelage:

a) Planning of the University physical expansion
b) Co-ordination of research within the university,
c) Co-ordination of extension services and community outreach programmes
d) Co-ordination of linkage between the University and other institutions
e) Co-ordination of income generating activities like effective utilization of university farms and the other university agricultural resources.
f) Chairing the University Tender Committee
g) Chairing the Joint management Committee of Maseno University-Bondo TTC

collaboration.
h) Chairing the ISO Certification Steering Committee
i) Chairing University Research Committee
j) Chairing the University ICT Committee

12. Key responsibilities at the AAS as the Executive Director

- Principally, during this period of my sabbatical, I assisted the President of the academy (AAS) in the day to day running of the Academy and in particular directly heading the Secretariat with the following core functions: Administration of the Academy's financial and human resources as well as and physical facilities. Fundraising for the Academy formed one of my core businesses. In particular, I developed a project proposal on Science-Technology-European-African-Platform (STEAP) which was subsequently funded by the European Union (EU) and as the project leader for this science initiative; it was my responsibility to manage, direct and lead the project.

13. Key responsibilities as the Deputy Vice Chancellor in-charge of Administration, Planning and Development, JKUAT entailed:

- Principally, I did assist the Vice Chancellor in the day to day running of the University and in particular directly the heading the Administration, Planning and Development Division of the University with the following core functions under my tutelage:

a) Administration of the University finances
b) Co-ordination of staff recruitment, training, promotion and retention
c) Personnel administration and discipline of staff in the university
d) Staff welfare matters
e) Provision of catering and welfare services
f) Provision of housing and office accommodation
g) Provision of health care services
h) Co-ordination of central services, estate as well as transport services
i) Provision and administration of registry services
j) Provision of secretarial services for the Council Committees and University Management Board
k) Any other duties that were assigned to me by the Vice Chancellor e.g. oversee the division of a fellow DVC who may be away or represent the VC as appropriate in functions.

- A part from the duties listed above as DVC (APD), I continued to provide guidance to undergraduate and post-graduate students (Masters and PhDs) as well as fund raising for university activities and directly or indirectly contribute towards the implementation of the university overall vision, mission and objectives.
- As a DVC-APD at JKUAT, I implemented the University's administrative and development policies; planning the human resources, financial and infrastructural requirements for the University through the Senate Committee in charge of Planning, Development and Establishment. Also, I chaired the following other Senate Committees:

  a) Staff welfare
  b) Catering and Accommodation
  c) Hospital, recreation and environment
  d) Staff housing

- Over and above the listed tasks, I am a member of various university organs and committees namely: Council, Senate, and University Management Board. I do provide secretarial services to both Council and the University Management Board.

14. Other previous administrative positions

Chairman of Department of Horticulture, JKUAT 1995-1999:
Key responsibilities in the Department of Horticulture as Chairman, Department of Horticulture entailed:
I was the administrative and academic head of the department in charge of planning the departmental needs for teaching, research, innovation, development and community services for both the staff and students. Also as COD, I was in charge of planning the departmental projections for growth and expansion, coordinating staff, budgeting, recruiting, executing academic programmes, instituting discipline and ensuring that set targets were met.

Full Professor of Horticulture my responsibilities:
a) Teaching and supervision of B.Sc., M.Sc. and Ph.D. students along with postdoctoral as well as other students who may only come for shorter programmes.

b) Formulation and implementation of research and community outreach programmes and projects.
c) Conducting research in horticulture with emphasis on environmental sustainability through low input agricultural practices, sustainable agronomic management, agricultural-bio-diversity; enhancement of food security and alleviation of poverty.
d) Fund raising for fellowships/scholarships for human resource development locally and abroad for students and departmental staff.
e) Initiating collaboration within and external to the university for the enhancement of academic and research quality of both students and staff.
f) Leading in faculty development, mentorship, scholarship, research and development, innovation and technology transfer.
g) Formulation of market driven programmes in line with the latest industry demands, national prioties and global trends.

Director (2000/2001): Institute for Energy and Environmental Technology (IEET), JKUAT

Key responsibilities at IEET as the Director were:

a) To offer administrative, technical, scientific and academic guidance at the institute.
b) Up-holding the activities of the institute in the realization of the set goals for both energy and environmental functions.
c) Soliciting for the funds from local and international sources in establishing the functional roles of the institute.
d) Establish, facilitate and co-ordinate the energy and environmental technology functions of the institute.
e) Initiate research, training and extension programs for human capacity development in the energy and environmental technology sectors.

Acting Dean, Faculty of Agriculture, JKUAT 1998

Key responsibilities as Dean were:

f) To offer administrative, technical, scientific and academic guidance at the Faculty.

g) Up-holding the activities of the Faculty in the realization of the set goals for academic, research and outreach functions.

h) Strengthen undergraduate and postgraduate training.

i) Initiate human capacity development for staff.

15. Knowledge of languages/linguistic capability

Excellent in oral and written **English, German and Kiswahili** (International), limited **French** and **Japanese**. Fluent in **Dholuo** my mother tongue.

16. Academic and professional qualifications

a) Post-doctoral research attained at Universities of Hannover, Germany and Okayama, Japan between April 1999 and January 2000. Focus of research was on tolerance of vegetables with special emphasis on tomatoes to the environmental stresses. DNA fingerprinting with the aim enhancing the genetic potential for minimization of environmental pollution due to the increased usage of the genetically modified crop plants formed an important basis of my study at Okayama University along with indexing a male sterile mutant tomato line.

b) Ph.D. Agricultural Science (Dr. agr.) obtained at the Institute of Crop Science of Federal Agricultural Research Centre (FAL), Braunschweig, and Germany, and Institute of Crop Science and Plant Breeding I, Justus-Liebig-University Giessen, Germany (1995). Key areas covered in the Ph.D. program: Analytical with bias on biochemical, agronomic and morphological characterization of tomato germplasm. Key elements of study involved usage of HPLC, electrophoretic techniques, elaborate statistical package for the evaluation of the tomato genetic resources; salinity and water deficit screening techniques and usage of morphological and physiological parameters to characterize the response to the two environmental stresses. My research was on a tomato crop, which in the past had been largely ignored in Kenya when it comes to crop improvement.

c) MSc. Agriculture (Plant Breeding) obtained at the University of Nairobi, Kenya (1989). The programme exposed me to practical and theoretical details of plant breeding principles, theories, plant genetic resources and their variability, molecular genetics, mutation breeding,

cytogenetics, quantitative genetics, population genetics, biochemistry, plant physiology and plant pathology. My research was on a marginalized but a high potential drought tolerant crop, *Amaranthus* spp.

d) BSc. Agriculture (Honors) obtained at the University of Nairobi, Kenya (1987). The program prepared me in all aspects of agriculture namely: Plant breeding and genetics, agronomy, crop protection, agricultural economics, animal science, agricultural engineering, soil science, horticulture with a view to fitting in areas like agricultural research, extension network, agribusiness and non-governmental organizations.

17. Management and leadership training; and information communication technology (ICT) skills

I. Management training

I have undertaken several management training programmes as outlined here bellow:

- October, 2019 Risk and Financial Management Training by ICPAK at Wigot Garden, Kisumu.
- May, 2019 International Course on Water Management and Policy, East and Central University, Oklahoma, Ada, USA.
- December 2017: Corporate Governance, Sarova Whitesands, Mombasa.
- June 2016, Trustee Development Training Programme, Kenya College of Insurance, Nairobi.
- January, 2015: Audit and Risk Management by the Institute of Auditors, Kisumu.
- 2012: Quality assurance of university education Laico Regency, Nairobi.
- June, 2009: Performance Contracting Management, AICAD, Nairobi, Kenya.
- June, 2009: Effective leadership and management, GTI Mombasa, Kenya.
- January, 2008: Quality assurance in higher education, Dar Salaam, Tanzania.
- June, 2007: Result Based Management and Transformative Leadership, Maseno University.
- August 2007: Leadership and management of higher education, Windhoek Namibia.
- February 2006: Performance contracting sensitization workshop, JKUAT.
- February, 2006: Japanese ODA sensitization workshop, Inter Continental, Nbi.

- August 2005: Management with focus on personnel, time, finance, office, team building as well as retention, motivation, accountability, work ethics in Machakos.
- May 2005: Performance contracting: Purpose, OP, Utali College, Kenya.
- May 2005: Management with focus on personnel, time, finance, office, team building as well as retention, motivation, accountability, work ethics in Nanyuki.
- 2003 Oct/ Jan 05: Strategic planning conducted by TIPS.
- November 2003: Quality assurance organized DAAD Safari Park, Kenya.
- Jun/July 2002: Summer school on research management, Hannover, Germany.

II. Leadership training

- July, 2017 Leadership Conference sponsored by the World Bank with Chinese Academy of Sciences.
- November, 2014 Higher Education Leadership Training, Qatar.
- June, 2009: Effective leadership and management, GTI Mombasa, Kenya
- June, 2007 Result Based Management and Transformative Leadership, Maseno University
- February, 2006 Student leadership training, Kenya School of Monetary
- 2005 Student leadership training, Manda Hotel
- May and August 2004: Student leadership training, Blue Post and Manda Hotels, respectively
- October 2003: Management of change, Dundee, Scotland

III. Governance

- December 2017: Corporate Governance, Sarova Whitesands, Mombasa conducted by CCG.
- April, 2015 Audit, Risk and Governance Training conducted by the Institute of Auditors
- August 2013 Governance and Audit
- June 2010: Ethics and corporate Training, KIA
- May 2002: Ethics and corporate training, Kenya School of Monetary Studies

IV. Computer competence

- 2017 Use of modern techniques in data analysis, Nairobi.
- 2019 Use of research search engine in publications and proposal development, JOOUST.
- 1992~1995: During my Ph.D. I had an extensive exposure to a wide range of computer packages, and skills namely: Word processing (MS Word), graphic (Havard Graghics; Statgraghics, Microsoft Power Point), statistical (Cosatat; Plabstat, SPSS and SAS), database (MS Access), spreadsheet (MS Excel; Quatpro) and internet applications.
- November 2004: Information technology communication course, ICSIT, JKUAT
- Self-training and practice on a continuous use of ICT platforms.

18. Fundraising and resource mobilization

Over the last thirty years, I have been involved in raising research project funds both from national, regional and international sources with focus in stimulating departmental, university, national, regional and international development for greater research capacity towards Research and Development (R&D). Examples of the funded projects among others are elaborated under Table 1 where I have been and/or I am the **Principal Investigator**.

Table 1: Funded research projects

Year	Project	Donor	Amount (KSHS)
1990	Groundnut germplasm improvement, JKUAT	JICA	200,000.00
1996	French beans agronomic improvement, JKUAT	Everest Enterprise	400,000.00
1999	Refurbishment of research facilities for Department of Horticulture at JKUAT	JICA/Japan	5,000,000.00

1999	Regional group training in plant propagation technology in Horticulture Department JKUAT	JICA/Japan	25,000,000.00
1997-1999	National Horticulture Seminar, JKUAT	JICA/Japan	2,400,000.00
2000-2004	Pesticide free French beans production system, JKUAT	Volkswagen Foundation/Germ	8,000,000.00
2001 - 2004	Sustainable Horticultural Production in the Tropics for Eastern Africa Region, JKUAT	DAAD/Germ	4,000,000.00
2001	Agricultural waste recycling, minimization and utilization, Institute of Energy and Environmental Technology, JKUAT	World Bank	200,000.00.
2001-2004	Computerization of the Administrative and Finance Departments, JKUAT	FORD/USA	6,800,000.00
1998-2006	Development of environmentally friendly management methods for red spider mites in small-holder tomato production systems in Eastern and Southern Africa, JKUAT	BMZ- Germany	7,000,000.00
2006-2008	Science and Technology-Europe Africa Project (STEAP), AAS	European Union/Belgium	20,000,000.00
2006	First Young Scientists Conference in Africa, AAS	TWAS/Italy	3,500,000.00
2006	Micro-science laboratory kit project, AAS	UNESCO	1,000,000.00
2006	Focal Point Meeting on Science Education in Africa, AAS	TWAS/Italy	2,000,000.00
2007	Integration of HIV/AIDS into University curriculum, Maseno University	AAU/Ghana	210,000.00
2007	Integrating scientific and technological approaches for development, Maseno University	DAAD/Germ	187,000.00
2007	TRO Memorial Lecture, Maseno University	AAS/Kenya	140,000.00

2008	Integrating scientific and technological approaches for development, Maseno University	DAAD/Germany	350,000.00
2008/2009	Socio-economic empowerment of Siaya	ICRAF/BATCH	800,000.00
2011-2012	Climate change project, LVBC	IDRC/Canada	20,000,000.00
2011-2012	Capacity development for postgraduate, AAS	RISE/USA	56,000,000.00
2011-2012	Quality assurance in food chain, AAS	FAO/Italy	35,000,000.00
2010-2019	Mistra Urban futures for sustainable urban development through green, fair and dense. MU-F/JOOUST	Sida/MISTRA Foundation, Sweden	400,000,000.00
2016-2021	African Centre of Excellence II on Sustainable Use of Edible Insects for food and feeds (INSEFOOD), JOOUST	World Bank	600,000,000.00
2016-2018	Consuming Urban Poverty (Urban Food Security), Mistra Urban Futures (M UF)-F/JOOUST	DFID/UCT	28,000,000.00
2017-2019	Nourishing space (Urban food security in a secondary city), UCT/JOOUST	IDRC/UCT	4,000,000.00
	Grand total of project funds raised to date		**2,060,000,000.00**

19. Linkage with key strategic partners

I do enjoy very good linkages and network with friends, fellow scientists and donors globally. Example of these linkage arrangements include: Mistra Foundation, Sweden, German Academic Exchange Service (DAAD), Volkswagen Foundation, GTZ (GIZ), JICA, FORD Foundation, Sida/SAREC, Finida, Academy of Sciences for the Developing World (TWAS), African Academy of Sciences (AAS), Mistra Urban Futures, Sweden, IDRC, Canada and DFID. Other institutional collaborators are EC University, Oklahoma, Ada, USA, University of Sheffield, UK, North-West University of Agriculture and Forestry, China. South China Botanical Garden, Chanal.

I am also a member of many both local and foreign-based boards, professional Associations, industries and firms as articulated in the preceding chapters.

20. Scholarship/Fellowship awards received to date to attend conferences

- February 2020, Higher Education Conference, Nairobi Kenya, World Bank
- February 2020, World Urban Forum, Abu Dhabi, Chalmers of University of Technology and Sida, Sweden
- October, 2019 International Conference on Food Security and Agriculture, Yangling, China.
- October, 2029 Higher Education Seminar by the World Bank
- September, 2019 4th Mistra Urban International Conference, Sheffield, UK.
- November, 2018 3rd Mistra Urban International Conference, Cape Town, South Africa.
- October, 2018 Higher Education Conference on ACE II organized by IUCEA, Kigali
- November, 2017 2nd Mistra Urban International Conference, Kisumu, Kenya
- August 2017 International Meeting on Just Cities, London, UK
- July 2017 1st Africa-China World Bank Sponsored Education, Beijing China
- January/February, 2013 MISTRA, Sweden for visit to Cape Town, SA attending International Meeting of M-UF.
- September 2016 1st International Mistra Urban Futures Conference in Sweden
- November, 2014 World Education Summit, Qatar
- December 2012, Dakar, Senegal, attending Afri-cities Conference, by Sida
- Sept 2012 World Urban Forum, Naples, Italy by Sida
- January/February, 2008 MISTRA, Sweden for visit to Chalmers
- November, 2008 Alliance for Global Sustainability, Cape Town, South Africa
- October, 2008 UN-Habitat WUF, Nanjing, China
- September, 2007 ANTSI meeting in Pretoria, South Africa
- May, 2007 IAP Water meeting in Trieste, Italy
- May, 2007 RUFORUM meeting in Nairobi, Kenya
- February, 2007 WAITRO meeting in Kampala, Uganda
- November, 2006 Extra-ordinary AMCOST AU Conference, Cairo, Egypt, NEPAD support
- October, 2006 ASADI Conference, Yaoundé, Cameroon, US NAS support
- October, 2006 Scientists and Policy Makers AU Congress, Alexandria, Egypt, AU support
- September, 2006 ICSU Conference, Johannesburg, SA, ICSU support

- May, 2006, Knowledge economy conference by the World bank, Johannesburg.
- May, 2006 Science and Technology Inter-Ministerial Meeting, ACP, Brussels.
- February, 2006 KNAW Visit on Science and Technology, Amsterdam, KNAW support
- November 2005: DAAD support to attend workshop on sustainable horticultural production in the tropics.
- November 2005: RUFORUM support to participant in the African Crop Science Society Conference, Entebbe, Uganda.
- November 2005: ANSTI support to attend Vice Chancellors, Provost and Deans Conference in Accra, Ghana.
- February 2005: AVRDC-USAID sponsorship to give Keynote Address Speaker at Global Horticultural Assessment Workshop in Arusha, Tanzania.
- February 2005: ISAR sponsorship to give a presentation on “Contribution of agricultural to research and development in Rwanda”, ISAR, Kigali.
- October 2004: AVRDC sponsorship to give a lecture in Genetic Improvement of African Indigenous Vegetables, AVRDC (The World Vegetable Centre) in Arusha, Tanzania.
- October 2004: DAAD sponsorship to attend Kenya DAAD Scholars Association conference on “Universities and Communities: enhancing collaboration to build a working nation, AICAD, Juja.
- September 2004: Volkswagen Foundation sponsorship to give Keynote address on “Resources, their Dynamics and Sustainability - Capacity Development Comparative and Integrative Approaches”. Organized by Volkswagen Foundation and Department of Geography, University of Bonn held in Nairobi.
- November 2003: DAAD sponsorship to attend DAAD Alumni Symposium on Alumni partners in Development Co-operation: Challenges, Best practices and Prospects held in Bonn, Germany.
- October 2003: AVRDC sponsorship to give a lecture in Genetic Improvement of African Indigenous Vegetables, AVRDC (The World Vegetable Centre) in Arusha, Tanzania.
- August 2003: Association of Commonwealth Universities, sponsorship to attend “Conference on Managing Change” at the University of Abertay Dundee, Scotland.
- August 1999 to January 2000 Matsumae International Foundation award to study molecular genetic variation in tomato.

- April 1999 to June 1999 DAAD award to study genetic variation in tomato in relation to water deficit stress at the Institute for Vegetable and Fruit Sciences, University Hannover, Germany.
- September 1998 Conference Fellowship from AVRDC to attend International Conference on Peri-Urban Vegetable Production in Bangkok, Thailand.
- August 1998 Congress Fellowship from JICA to attend the 25th International Horticultural Congress in Brussels, Belgium.
- June/July 1997: DAAD Scholarship for attending International Conference in Braunschweig, Germany.
- April 1992-December 1995: A four-year DAAD scholarship for a Ph.D. program at the Institute of Crop Science (FAL), Braunschweig and the Institute of Crop Science and Plant Breeding I, Justus-Liebig University, Giessen, Germany.
- October 1991-March 1992: A six-month DAAD scholarship for a German language course at Goethe-Institute, Goettingen, Germany.
- October 1987-Sept. 1989: A two-year German Academic Exchange Service (DAAD) scholarship for a MSc Course at the University of Nairobi.

21. MSc and PhD scholarships mobilized

a) **MSc.:** 1998-Mr. Losenge (Horticulture, for Germany), 1999-Mr. P. Ajwang (Agric. Engineering, for Germany), 2000-Ms. Mugada (ICIPE/JKUAT Tomato Red Spider Mite Project, JKUAT); Ms. Zedi (Rainbowblooms-Limuru, for Germany)

b) **Ph.D.:** 1999-Mr. P. Masinde (Horticulture, for Germany), Mr. B. Nyende (Plant Breeding-Part time Lecturer, Horticulture, for Germany), 2000- Mr. T. Losenge (Horticulture, for Germany) and Mr. J. Wesonga (Horticulture, for Germany)

c) **MSc.**: 2004-Mr. Muchiri Vincent, AVRDC - Indigenous Vegetable

d) **MSc and Ph.D**.: 2001~2007- Mr. Christopher Ojiewo, Monbosho, Okayama University, Japan: African leafy Indigenous Vegetables: Mutation breeding in black nightshade.

e) **Ph.D.:** 2004~2006-Mr. Mwai, AVDRC, Arusha: African leafy Indigenous Vegetables: Characterization and purification of promising black nightshade accessions for variety development

f) **Ph.**D.: 2003 ~ 2007 - Mr. Matoka, DAAD FAL, Germany: Physiology of drought stress

g) PhD: 2012 ~2014 Branding Culture as an Attraction for Ecotourism Planning in Kisumu West District (Achieng, D.O.)

h) PhD: 2012 ~2014: Integrating Urban and Peri-Urban Agriculture within Ecotourism: A Case of Indigenous Crops In Kisumu City and its Environs (Bwana, M.A.)

i) **PhD:** 2012 ~2014: Integrating Water and Sanitation as a planning approach to ecotourism promotion within Informal Settlements, Kisumu City (Okungu, J.O.)

j) PhD: 2012 ~2014: Effect of Development Induced Displacement of Human Population on Ecotourism In Kisumu Municipality, Kenya (Ochieng, D.A.):

k) **PhD:** 2012 ~2014: Ecotourism as strategy for climate change adaptation: A Case of Kisumu East District Kenya (Otieno, R.)

l) **PhD:** 2012 ~2014: Eco-Tourism as a Strategy to Improve Environmental Quality in Informal Urban Settlement of Nyalenda, Kisumu City (Ochieng F.A)

m) **PhD:** 2012 ~2014: Mainstreaming A Gender Perspective In Environmental Management of Ecotourism Destination Sites, Kisumu City (Mogoria, N. A.)

n) PhD: 2012 ~2014: A Strategy for Transforming Kisumu-Bondo Corridor in Kenya into an Ecotourism Cluster for Sustainable Development (Nyamweno, I. M.).

o) PhD: 2012 ~ 2015: Greening of Kisumu City (Fredrick Owino); others include

p) Strategic positioning of marketplaces and learning institutions as digital village centres for rural empowerment and ecotourism development in Bondo District (Obare G O)

q) Urban and peri-urban agriculture as a strategy of in promoting food security in Bondo Town (Massawa, S. O.)

r) Involvement of community in manufacture of bricklets as an alternative promoting sustainable tourism in Bondo District (Odero, M. O.)

s) Involvement of community In manufacture of organic fertilizer in promoting integrated water hyacinth management in Kisumu District (Ogada, J. A.)

t) Effects of transport pooling in mitigating carbon dioxide emission: a case of study of Kisumu City (Achola, M. J.)

u) Entrepreneurial impact of ecotourism development in Siaya District (Wanyang, P. O.)

v) Safety implications of commercial motor cycle transport in Marketplaces in Siaya County (Tiema, M. A.)

w) Social-cultural embodiment in ecotourism development (Omondi, G. O.)

x) Interfacing virtual space for Eco-ventures within the context of urban agriculture (Achieng, L. A.)

y) Community participation in environmental conservation to promote sustainable tourism (Owour, R. A.)

22. Work experience

I worked as a lecturer at the Jomo Kenyatta University of Agriculture and Technology (JKUAT) commencing my carrier as Graduate Assistant in 1989, Assistant Lecturer (1990), Lecturer (1991), Senior Lecturer from June 1996 to 2001 and since May 2001 to 2018 Associate Professor and 2018 to date Full Professor at Maseno University till 2020. From December 2009, Adjust Full Professor at JOOUST. I have since fully transferred my service to the University in 2019. During this period, I have been teaching and conducting several research projects of both local as well as international funding sources. Between 1989 and now, I had a chance also to serve the Department in various capacities namely: Head of Department of Horticulture (1996-1999), Acting Dean Faculty of Agriculture (1997), representing the University in key research meetings at KARI among others and DVC (APD).

Upon the expiry of the 5-year term as DVC (APD), at JKUAT in February 2006, I joined African Academy of Science as the Executive Director (2006), a position held till appointment as the Deputy Vice Chancellor (Planning, Research and Extension Services), Maseno University (2007) and later (January 2009) appointed Acting Principal, Bondo University College before being appointed Acting Vice Chancellor in Feb 2013 and subsequently appointed as the first Vice Chancellor for JOOUST in June 2013. On the other hand, I served at JKUAT as a Senior Lecturer and Head of Department (1996-1999), Associate Professor (2001 to 2008) and as a Professor of Horticulture (Maseno University, May 2008 to date 2019. Since Jan 2020, I am Full Professor at JOOUST.

My functions as a full Professor, I directly and indirectly benefit the University's fraternity and have continued to:

a) Provision of leadership and administration of the departmental academic and research programs
b) Formulation of research programs
c) Fund raising for fellowships/scholarships for human resource development locally and abroad for students, departmental staff as well as other qualified deserving Kenyans
d) Teaching and conducting research in horticulture especially in vegetable crops, environmental sustainability through low input agricultural practices, sustainable agronomic management, agricultural-bio-diversity, enhancement of food security and alleviation of poverty and,
e) Supervision and mentorship of M.Sc. and Ph.D. students as indicated below:

PhD candidates supervised to completion

a) Mr. Muigai (Hort., JICA-JKUAT/Okayama-Japan)- Research on Al-toxicity in bean germplasm (concluded, 2002).
b) Mr. Magoma (Bioch., DAAD-JKUAT/TRF)-Biochemical evaluation of tea germplasm (concluded, 2002).
c) Mr. Nyende (Private, DAAD-JKUAT/Braunschweig-Germany)-Agronomic improvement of potato (concluded, 2004).
d) Mr. Masinde (Hort., DAAD-JKUAT/Hannover-Germany)-Physiological aspects of water and nutritional stress in cow-pea (concluded, 2003).
e) Mr.Losenge (Hort., DAAD-VW-JKUAT/Hannover-Germany)- Pest management models for increased French beans production (Concluded, 2005).
f) Mr. Wesonga (Hort., DAAD-VW-JKUAT/Hannover-Germany)-Growth management models for increased French beans production under low agricultural inputs (Concluded, 2005).
g) Mr. Muchiri (Bot., Private/JKUAT)-Tree tomato virus disease management (Concluded 2005).
h) Mr. Baya, Tomato IPM Characterization as parasitoids in horticulture crops (concluded, 2007).
i) Mr. Ojiewo Christpher (Hort., Monmbusho, Japan)-Male sterility studies in Solanum spp for increased vegetable production in the tropics (concluded in 2007).
j) Mr. Matoka (Hort., DAAD, FAL) Physiology of drought stress (concluded in 2007)
k) Fred Owin (MU-F) Ecotourism transformation (concluded 2015), JOOUST
l) Richard Otieno (MU-F) Value addition chain for alternative livelihood (2017 ongoing)

M.Sc. candidates supervised

a) Ms. Mugada (Tomato Red Spider Project, ICIPE-JKUAT)-Characterizing modes and pattern of resistance in tomato for red spider mites (concluded, 2003)
b) Ms. Gathu (ICIPE Vegetable IPM Project, ICIPE-KU)-Evaluation of neem formulation in the control of selected pests in French beans (concluded 2001).
c) Ms. Reini (ICIPE Vegetable IPM Project, ICIPE-KU)-Evaluation of neem formulation in the control of selected pests in cabbages (concluded, 2002)
d) Mr. Muchiri (African indigenous leafy vegetables (concluded, 2005)
e) Mr. Macharia (Diamond Black Moth of Cabbages (concluded, 2004).

f) Mr. Momanyi George (Zoology, ICIPE)-Tomato Diamond Black Moth (concluded, 2004).
g) Ms. Lucy Kinanu (Hort., ICIPE) -Phytochemicals composition and attributes in the RSM resistance in tomatoes (concluded, 2005).
h) Ms. Everlyne Nafula (Hort, ICIPE)-Tomato Breeding for RSM (concluded, 2006)
i) Ms. Grace Mumbi (Hort, KARI), Potato resistance to potato mosaic virus (2008)
j) Aseka (DAAD), Intercropping for management of crop diseases (2008)

23. Core areas of teaching and competence:

a) Plant Breeding/Breeding of Horticultural Crops
b) Cytogenetics and genetics
c) Biometrics (Agricultural experimentation/ Experimental Design)
d) Seed Science and Technology
e) Introduction to General Agriculture and Crop Production
f) Research Projects
g) Food Security

A part from teaching, as a Professor, I have participated nationally in various capacities namely, external examiner for Universities in Kenya in examining Ph.D. and MSc theses as well as BSc programs in crop science/horticulture/agronomy at Nairobi, Moi and Egerton Universities, respectively. I have also refereed various scientific proposal and manuscripts for different institutions, Journals and Organizations. For example, locally I have reviewed research project proposals for Horticultural Crops Development Authority (HCDA) and Kenya Agricultural Research Institute (KARI) for funding purposes and many manuscripts for JAST. I have also edited among other scientific publications six National Horticulture Seminar Proceedings (Agong et al., 1997; 1999; 2001, 2002; 2003 and 2004).

24. Research activities

I have won funding for research from JKUAT, JICA, GTZ (GIZ), BMZ, KARI, DAAD, VW, FORD Foundation, AICAD, TWAS, EU, BATCH, Mistra Urban Futures, Sida, FAO, UNESCO, DFID and IDRC for various research projects. These research programs are targeting optimization of locally available horticultural resources for poverty alleviation and facilitation of food security in the region.

Current research focus

I. ***Germplasm development in vegetable crops***

a) Genetic Improvement In Tomato (*Lycopersicon esculentum)*: Screening tomato for red spider mite (regional project funded by GTZ-on going); Screening tomato for bacterial wilt and late blight (JICA funding-concluded); Genetic variation in tomatoes to water deficit stress (DAAD/Univ. Hannover) jointly with Prof. Dr. H. Stuetzel (on going); Genetic variation in tomatoes to salt tolerance- Molecular Variations in Tomatoes (Matsumai International Foundation-Okayama Univ.) jointly with Prof. Dr. Masuda (concluded)
b) Electrophoretic evaluation of Horticultural Crops in Kenya (DAAD-Commenced in January 2001).
c) Seed production in the Solanaceae: *Lycopesicon esculentum* and *Solanum nigrum* (JKUAT-concluded).
d) Groundnut improvement project (JKUAT-Concluded).
e) Pest spectrum studies in French beans, Snow peas and Okra (ICIPE/KARI funding-on going).
f) African indigenous leafy vegetables: Genetic and agronomic improvement as well as alternative applications for nutritional, health and socio-economic growth.

II. ***Low external-input horticulture, environment friendly and sustainable agriculture***

a) Utilization of tannery waste for the manufacture of organic fertilizer (Yet to be funded).
b) Optimization of agronomic practices in spider plant (JICA-concluded)
c) Low input systems for French beans and Tomato (VW- Commenced in June 2000).
d) Screening for aluminium toxicity in Kenyan bean germplasm (JICA-on going).
e) Banana research on ripening characteristics (JICA-concluded).
f) Passion fruits research on ripening characteristics (JICA-concluded).

III. **Agricultural-*bio-diversity***

a) Investigations on the changes in bio-diversity status in French beans production systems (VW-Commenced in June 2001).
b) Ecological-physiological adaptation studies in vegetable crops under equatorial region (Submitted to Monbosho)
c) Ecological and nutritive potential of African indigenous vegetables (initial funding 2005, VW)
d) On-station and on-farm yield and quality analysis of induced male sterile and octoploid African nightshades and giant amaranth (submitted to JICA, 2006)
e) Urban agriculture and food security in the realization of sustainable socio-economic urban development.

25. International visits

I have been to Germany several times having undertaken my Ph.D. programme in this country. A part from Germany, I have been to other countries on official duties in Africa (Uganda, Tanzania, Rwanda, Zimbabwe, Zambia, Ivory Coast, South Africa, Ethiopia, Egypt, Cameroon and Ghana), Europe (Germany, Belgium, England, Scotland, Greece, The Netherlands, and Sweden), Latin America (Mexico), North America (USA, Canada), and Asia (Thailand, Hong Kong, Japan, Malaysia and China).

I have served as a guest Lecturer in Vegetables for Asian Vegetable Research and Development Center (World Vegetable Centre) - AVDRC-African Program on the Regional Course in Vegetable Improvement and as an Expert on the evaluation for German International Technical Cooperating (GTZ) regional research and human capacity development programs in vegetables as well as fruit tree crops. Also, I have assisted several small- and large-scale holders in horticulture improve on their yield levels by availing to them useful technical hints.

26. Professional affiliation

a. A Fellow of African Academy of Sciences (FAAS), 2006
b. Matsumai International Fellow, Japan, 2000

c. Member of International Society of Horticultural Science (ISHS)
d. **Founding Chairman**, Horticultural Association of Kenya (HAK); (1997-2003), currently a Trustee of HAK
e. **Patron,** Horticultural Association of Kenya (HAK); (2002 to date)
f. BOM Member, Ogande Girls High School (2020 to 2002)
g. **Chairman,** Executive Committee of the Kamagambo SDA TTC (2008 to 2018)
h. **Chairman,** BOG George Agola Owuor Secondary School (2008 to 2012)
i. Member BOM, George Agola Owuor Secondary School (2012 to date)
j. **Secretary-General** of Plant Breeders Association of Kenya (PBAK); (2000-2004), currently member
k. Member of International Council of the Society for Sustainable Agriculture and Resource Management (SSARM)
l. Member of DAAD Scholars association of Kenya (KDSA)
m. Member of Crop Science Society of Kenya (CSSK)
n. Member of the National Horticultural Research Center (NHRC), Thika Advisory Committee (CRAC)
o. Member of Agricultural Society of Kenya (ASK)
p. Animal Production Society of Kenya (APSK)
q. Member of New Your Science Academy
r. Has served as the JKUAT's Representative to the Jomo Kenyatta Academy Committee
s. Church Elder, New Life SDA Church, Nairobi
t. Vice Chairman, Karura SDA School Board
u. Member of Pangani Girls School Board

27. Consultancy services at international level

a. Guest Lecturer to give presentation on the Food Security, Agriculture, Water and Energy Nexus at NWAFU, China in 2019.
b. Guest Lecturer to give presentation on the Food Security and Water Relations EC Uni Oklahoma, Ada, USA in 2019.
c. Guest Lecturer to give presentation on the Agriculture, Water and Energy Nexus at Brown University, Rhode Island, USA in 2014.

d. Reviewed GTZ-ITFSP (Integration of Tree Fruits in Farming Systems Project) implemented sectoral project along with other mission member in May, 1997 on behalf of the GTZ, German and Kenyan Government.

e. Facilitator for HCDA on Strategic Plan development, 2004

f. USAID Global horticultural initiative, Key speaker 2005.

g. Guest lecturer on breeding for the Regional Group Training Program in Vegetable Improvement hosted by AVRDC-ARP, Arusha, Tanzania since July 1997 to 2012.

28. Development initiatives

- Conceived the Research Centre at JOOUST 2016 and is being funded currently under the World Bank funding.
- Conceived and finalized the Tuition Complex at JOOUST, 2016. The subsequent phases of this project will be established at Achiege ease of decongestion.
- Conceived, planned and implemented the ultra-modern research laboratory,
- Conceived and implemented the construction of the student hostel
- Conceived and is implementing the construction of the three thousand (3000) sitting capacity ultra-modern library.
- Conceived and implanted the eco-site facility at Miyandhe in 2013.
- Conceived and implemented the construction of the Auditorium in 2016.
- Conceived and planned the establishment of eco-site facility at Miyandhe Beach as well as the cage fish farming concept, JOOUST.
- Initiated and fully developed the MSc Horticulture Program (1996) during tenure as Chairman of Horticulture Department (1996~1999). This program is so far very successful not only in Kenya but also regionally.

- **Developed a Regional Group Training Program in Horticultural Plant Propagation Course for JICA funding (1998) during tenure as Chairman of Horticulture Department (1996~1999).**

This program was evaluated and finally funded by JICA (1999~2003) rated as one the most important avenue for increasing food security and poverty alleviation in the region.

- **Invigoration of University-Industry linkage**

Currently, through the Mistra Urban Futures Project, the triple helix concept of the academia, private sector and public interacting is on track.

I got Everest Ltd to facilitate French bean export with the Department of Horticulture providing technical, scientific and the necessary production infrastructure while Everest providing other inputs (seed, pesticides, fertilizers and cash for the operations) (1997~1998).

This innovative program brought into the university a net profit of Kshs. 50,000/= on a weekly basis after settling down all the production costs. On the strength of this project, I submitted a proposal to VW Foundation that was finally funded and has provided scholarship to two Ph.D. students.

- **Was instrumental in formulation and finalizing AICAD concept for funding by JICA.**
- **Developed framework for the statutory establishment of the Institute of Energy and Environmental Technology (IEET) (2000).**

For over ten years IEET had been in place without clear basis, vision, mission, objectives and was not established. Upon my appointment as Director for the Institute, I immediately embarked on this exercise. Senate and Council approved the statutory establishment of IEET in 2001. The University has continued to use this framework as a template for the establishment of other institutes.

- **Developed short course in Solar Energy (Photovoltaic), Wind Energy, Agricultural and Plastic Waste Recycling for World Bank funding, 2000.**

These programs were successfully developed, peer reviewed and funded by World Bank via KIRDI. Within the short time I ran the programs, the University made surplus of more KShs 2,000,000/=. On the basis of this output, the University Management Board approved the proposed IEET block to strengthen its operations.

- **Completion of Science Complex unit.**

Over ten years, this project stalled. Upon my appointment as Deputy Vice Chancellor (Administration, Planning & Development) in 2001, I urgently reviewed and made proposal to the University Management Board, Council and Government of Kenya for its completion. Government of Kenya provided funds in the tune of Kshs.20million and I consolidated the Income Generating Units (IGUs) fund to the tune of Kshs.60million to see the project through for use by January 2003. In its completion, an additional floor that would accommodate five hundred (500) students was put in place instead of the original plan to have only four floors in the complex.

Ø Establishment of JKUAT Nairobi Centre and Karen Campus

As a University located 36km from Nairobi City, we needed a strong connection to the city center and therefore in 2002, the idea of acquiring a facility in the city was born and executed under my tutelage. Currently, (2005), we have over three hundred (3000) students at the Campus.

Ø Establishment of JKUAT Sports field

With the relocation of University sport field in 2001 upon acceptance of AICAD's headquarter at JKUAT, the University Management Board directed that I explore the possibility of delivering the sports facility in less than one year with the use of internal capacity. This great experimental has changed the University's outlook and many other sister institutions have copied this concept.

Ø Establishment of JKUAT Karen Campus

As a university located 36km from Nairobi City, we needed even a much more visible presence in Nairobi over and above JKUAT Nairobi Centre and therefore in 2005, the idea of acquiring an extra facility in the city was born and executed under my tutelage. Currently, (2008), the Campus has over 1000 students.

Ø Staff and Students Welfare Programs

Better house allowance for staff was negotiated for with the Government of Kenya under my tutelage as the DVC APD. This became an attraction and retention point for excellent human resource in the University. Also appropriate and enhanced pension scheme was initiated and implemented under my wisdom.
The Staff Mortgage and Car Loan facility for JOOUST (2016).
Internally and nationally negotiated Collective Bargaining Agreements (CBAs) for 2013-2017 for staff have been fully implemented under my supervision. I initiated the internally negotiated CBA for 2017-2021 which have been since finalized awaiting concurrence by Salaries and Renumerations Commission (SRC) for subsequent implementation.
Improved terms and conditions of service for staff at Jaramogi Oginga Odinga University of Science and Technology since the establishment of the University in 2010 during my leadership as Principal and currently as founding Vice Chancellor.
Initiated the Student Work Study Program in 2010 that has been running to date. The scheme has assisted needy students who would other drop out of the University.
Establish scholarship program with the support of the Prof Bull of Brown University and Osienala in which four undergraduate students successfully completed their studies and have since graduated.
Initiated the Chancellor Endowment Fund in 2019 to offer scholarship to bright and needy students. The mobilization of the requisite resources is underway.

Ø Computerization of the Finance Department

In 2010 networked with my former student Mr Chris Kinuthia and had a donation of Computer Software for processing of payroll at Bondo University College thus saving the University the expenditure on this item.

In 2002, my proposal to computerize the finance and administrative functions was financed by FORD Foundation to the tune of Kshs.6million. The greatest benefits from this project are:-

1. Establishment of internal payroll system thus saving the university an average of Kshs.200,000.00 per month which would otherwise be paid to a firm despite JKUAT being a technological university.

2. Increased efficiency in processing financial transactions and management.

Ø Development of Maseno University's research and linkage policies

The research policy was instrumental in enabling Commission for Higher Education to finance research project at Maseno University.

Ø Development of Bondo University College's infrastructure, human and financial resources.

I conceived, developed and successfully defended the proposal on the physical infrastructure for the teaching and research laboratory.

29. List of internationally refereed publications

MAGWANGA Richard Odongo, LU Pu, KIRUNGU Joy Nyangasi, CAI Xiaoyan, ZHOU Zhongli, **AGONG Stephen Gaya**, WANG Kunbo and LIU Fang. 2020. Identification of QTLs and candidate genes for physiological traits associated with drought tolerance in cotton. Journal of Cotton Research: 3:3 https://doi.org/10.1186/s42397-020-0043-0.

Richard Odongo Magwanga, Pu Lu , Joy Nyangasi Kirungu, Qi Dong, Xiaoyan Cai, Zhongli Zhou, Xingxing Wang, Yuqing Hou, Yanchao Xu, Renhai Peng, **Stephen Gaya Agong**, Kunbo Wang 1,* and Liu Fang. 2019. Knockdown of Cytochrome P450 Genes *Gh_D07G1197* and *Gh_A13G2057* on Chromosomes D07 and A13 Reveals Their Putative Role in Enhancing Drought and Salt Stress Tolerance in *Gossypium hirsutum*. *Genes* **2019**, *10*, 226.

Agong, SG. 2019. Food and Nutrition Security as relates to the Big Four Agenda in Kenya. International Conference Proceedings in Agriculture, NWAFU, China, October 2019.

Agong SG. 2019. Agriculture, Food, Energy and Water Nexus. Proceedings of the International Seminar on Water Management and Policy. East Central Oklahoma University, Ada, USA, May 2019.

Owino, F. O., Hayombe, P. O. & **Agong S.G**. (2017). *The Effect of Diminishing Urban Green Spaces on Environmental Quality in Kisumu City*, International Journal of Geography and Regional

Planning Research, Vol.2, No. 1, 10-23. ISSN 2059 - 2426 (Online), ISSN 2059 - 2418 (Print)); 2307-9584

George Mark Onyango and **Stephen Gaya Agong**. (2017) Dynamics of urban governance within the context of devolution: Experiences from Kisumu, Kenya. International Journal of Business and Social Research Volume 05, Issue 06.

George K. Ngusale, Michael Oloko, **Stephen G. Agong'**, Belinda Nyakinya (2017) Energy recovery from Municipal Solid Waste. Energy Sources, part A: Recovery, Utilization and Environmental Effects, Pages 1807-1814. Taylors & Francis Journal on Energy Recovery from Municipal Solid Waste.

Frankline Otiende Awuor, Monica Awuor Ayieko1, Patrick Odhiambo Hayombe, **Stephen Gaya Agong'**. **2015**. A Classification of Tourism Offerings Based on Intrinsic Attributes International Journal of Business and Social Research Volume 05, Issue 06.

Achieng' David Omondi1, Okungu Jared Ouma2, Hayombe Patrick O.3 and **Agong Stephen G. 2015**. Conjunctive Use of Surface and Groundwater as Agri-tourism Resource Facilitator: Discourse Analysis for Planning in Developing Nations. IOSR Journal of Computer Engineering (IOSR-JCE) e-ISSN: 2278-0661,p-ISSN: 2278-8727, Volume 17, Issue 1, Ver. I. www.iosrjournals.org

DAVID OMONDI ACHIENG, PATRICK O. HAYOMBE**, STEPHEN G. AGONG**. **2015.** Cultural sites impressions: a market niche for ecotourism destinations in Kisumu county, Kenya. International Journal of Research In Earth & Environmental Sciences. Vol 2, 8:20-28.

JARED OUMA OKUNGU, PATRICK O. HAYOMBE and **STEPHEN G. AGONG. 2015.** Ecological risk perceptions and public participation in recreational activities within lake waterfronts in Kisumu county. International Journal of Research In Earth & Environmental Sciences. Vol 2, 8: 1-13.

ODEDE Fredrick Z. Argwenge, HAYOMBE Patrick Odhiambo, **AGONG Stephen Gaya**, ANANGA George Ochieng. **2013**. Sacred Habitats at Got Ramogi Cultural Landscape: Opportunities and Strategies for Ecotourism in Siaya County, Kenya. Journal of Arts & Humanities (JAH), Volume 2 No.1, 56-64.

Mwai, G.N., C.O. Ojiewo, P.W. Masinde and **S.G. Agong**. **2013**. The genetic improvement of African indigenous leafy vegetable: A case study of African nightshades: ACTA Horticulture: 45-64.

Patrick Odhiambo HAYOMBE, **Stephen Gaya AGONG,** Maria NYSTROM, Lena MOSSBERG 5. Bjorn MALBERT 6. Fredrick ODEDE. **2012.** Up scaling Ecotourism in Kisumu City and Its Environs: Local Community Perspective. International Journal of Business and Social Research, Volume 2, Number 7; ISSN 2164-2540

Agong', S.G., F. Odede, G.O Ananga. **2013**: Urban History and Cultural Heritage in the Advent of Modernization: The Case Study of Kisumu. Kenya Past and Present Issues. 40. 1-8.

Gideon N. Mwai1, Chris O. Ojiewo2, Peter W. Masinde3 and **Stephen G. Agong'. 2012.** Good Agricultural Practices for African Nightshade Production in Sub-Saharan Africa: ISBN 978 90 6605 694 7, ISHS No 5: *Scripta Horticulturae*.

Chris O. Ojiewo1,5 • Gedion N. Mwai2 • Mary O. Abukutsa-Onyango • **Stephen G. Agong** • Remi Nono-Womdim**: 2013.** Exploiting the Genetic Diversity of Vegetable African Nightshades. Bioremediation, Biodiversity and Bioavailability7***(1): 6-13***

Peter Wafula Masinde, John Mwibanda Wesonga, Christopher Ochieng Ojiewo, **Stephen Gaya Agong',** Masaharu Masuda. 2009. Plant Growth and Leaf N Content of *Solanum villosum* Genotypes in Response to Nitrogen Supply. *Dynamic Soil, Dynamic Plan: 3(1): x-y*

Ojiewo O. C., K. Murakami, M. Masuda and **S.G. Agong'**. **2009**. Induced Male-Sterility Alters Dry Matter Distribution in *Solanum villosum* Mill. Acta Hort. 806: 571-577

Wosula E. N., M. Knapp and **S.G. Agong'**. **2009**. Resistance to *Tetranychus evansi* in *Lycopersicon esculentum* x *L. hirsutum* var. *glabratum* hybrids. Journal of Horticultural Science & Biotechnology **84** (3) 360-364

Agong, S.G. 2008. Handbook on leafy African traditional vegetables. (Accepted by the Academy Science Publishers).

Bayea J., S. Sithanantham, L. M. Gitonga, E. O. Osir and **S. G. Agong'**. **2007**. Scope for genetic enhancement of the parasitisation potential of four native strains of Trichogrammatoidea sp. nr. lutea Girault (Hymenoptera : Trichogrammatidae) in Kenya. Biocontrol Science and Technology, 17(7): 743-755.

Ojiewo, C. O., K. Murakami1, P. W. Masinde and **S. G. Agong'**. **2007**. Polyploidy Breeding of African Nightshade (Solanum section Solanum). International Journal of Plant Breeding. 1-12.

Ojiewo, C. O., K. Murakami1, P. W. Masinde and **S. G. Agong**. **2007**. Mutation breeding of African Nightshade (*Solanum* section *Solanum*). International Journal of Plant Breeding. 39-49.

P.W. Masinde, H. Stuetzel**, S.G. Agong** and A. Fricke. **2006**. Plant growth, water relations and transpiration of two species of African nightshade (*Solanum villosum* Mill. ssp. Miniatum (Bernh. ex Willd.) Edmonds and *S. sarrachoides* Sendtn.) under water-limited conditions. Scientia Horticulturae: 110, 7-15.

Ojiewo, C.O., **S.G. Agong**, K. Murakami, A. Tanaka, Y. Hase and M. Masuda. **2006**a. Chromosome duplication and ploidy level determination in African nightshades (*Solanum nigrum* L. ssp. *Villosum* Mill): Journal of Horticultural Science and Biotechnology: 81, 183-188.

Ojiewo, C.O., **S.G. Agong**, K. Murakami, A. Tanaka, Y. Hase and M. Masuda. **2006**b. Biological effect of carbon-ion beam on the mutagenesis and a novel season-dependant floral homeotic mutant in African nightshades (*Solanum nigrum* L. ssp. *Villosum* Mill) seed. Journal of Horticultural Science and Biotechnology: 81, 81:559-564.

Ojiewo, C.O., **S.G. Agong**, K. Murakami, M. Masuda, A. Tanaka and Y. Hase. **2005**. Male sterility induced by seed irradiation with gamma rays in African nightshades (*Solanum nigrum* L. ssp. *Villosum)*: Journal of Horticultural Science and Biotechnology: 80 (6):699-704.

Masinde, P. W., H., STUETZEL, **S.G. Agong**, AND A., FRICKE. **2005**. Plant Growth, Water Relations and Transpiration of Spiderplant (*Gynandropsis gynandra* (L.) Brig.) under Water-Limited Conditions. Journal of American Society for Horticultural Science. 130:460-477.

Masuda, M., N. Hata, F. .K. Ombwara and **S.G. Agong**. **2005**. Spinach seed germination at 30ºa after re-used acid scarification, followed by priming with NaCl or sea water and drying back. 2005. Journal of the Japanese Society for Horticultural Science, 74:134-138.

Agong, S.G; Y. Yoshida, S. Yazawa and M. Masunda, **2004**. Tomato response to salt stress. Acta Horticulture 637 ISHS 93-97.

Masunda M., **Agong, S.G.**, A.Tanaka, N. Shikazono and Y. Hase, **2004**. Mutation spectrum of Tomato induced by Seed Radiation with carbon and Helium ion Beams. Act. Horticulture 637, ISHS 257-262.

Agong S. G., Biotechnology applications in crops. **2003**. Food, Agriculture and Environment Vol. (3&4): 222-225.

Markus Knapp, Debora Apiyo Mugada and **Agong, S.G. 2003.** Screening Tomato *Lycopersicon esculentum* Mill) Accessions for resistance to the two spotted spider mite Tetranychus urticae Koch: Population Growth Studies. Insect Science Vol. 23, No.1 pp.15-19.

Agong S. G., M. Kingetsu, Y. Yoshida, S. Yazawa and M. Masuda. **2003.** Response of tomato genotypes to induced salt stress. African Crop Science Journal, Vol. 11No.2 pp.133-142.

G.N. Magoma, F.N. Wachira, M.O. Imbuga, **Agong, S.G. 2003.** Biochemical differentiation in Camellia in Camellia sinensis and wild relatives as revealed by isozyme and catechin patterns. Biochemical Systematics and Ecology 31: 995-1010.

E.N. Mugai, **Agong, S.G.** and H. Matsumoto. **2002**. Aluminium Tolerance of Four Bean (*Phaseolus vulgaris* L.) Varieties. JAST Vol.4(1): 52-65.

Agong, S.G., S. Schittenhelm and W. Friedt, **2001**. Genotypic variation of Kenyan tomato *(Lycopersicon esculentum* L.) germplasm. The Journal of Food Technology in Africa Vol.6 No.1 pg. 13-17.

Agong, S.G., S. Schittenhelm and W. Friedt. **2000**. Genotypic variation of Kenyan tomato *(Lycopersicon esculentum* L.) germplasm. Plant Genetic Resources. 123: 61-67.

Masuda, M., K. Uchida, K. Kato and **Agong, S.G. 2000**. Seasonal Dependent Male Fertility Restoration in Induced Tomato (cv. First) Male Sterile Mutant. Japanese J. Hort. Sci. 69: 557-562.

Sugiura, H, **Agong**, **S.G.** A. Enami, H. Kaneko, and T. Honma. **2000**. Comparison between embryoid and shoot primordia methods for 'Asiatic hyrbid Lilly" and Oriental hybrid lily'. African Crop Science Journal 8 (2): 1-8.

Magoma, G.N., F.N. Wachira, M. Obanda, M. Imbuga and **Agong, S.G. 2000**. The use of catechins as biochemical markers in diversity studies of tea (*Camellia sinensis*). *Genetic Resources and Crop Evolution* 47: 107-114.

Mugai E.N., **Agong, S.G.** and H. Matsumoto. **2000**. Aluminium tolerance mechanisms in Phaseolus vulgaris L.: Citrate synthase activity and TTC reduction are well correlated with citrate secretion. *Soil Science and Plant Nutrition* 46: 939-950.

Agong, S. G., S. Schittenhelm and W. Friedt. **1997**. Assessment of salt tolerance in the Kenyan tomato germplasm. *Euphytica 95*: 57-66.

Agong, S.G. 1998. Groundnut (*Arachis hypogaea* (L.) Merr.). *In* N. El Bassam (Ed.) *Energy Plant Species: Their Use and impacts on the environment and development*. James & James Science Publishers, London, 156-158. (Book contribution; ISBN 1 873936 75 3).

Agong,S.G. 1998. Biomass production in groundnuts *Arachis hypogeae* under moderate salinity. *In* H. Kopetz *et al*. (Eds.) *Biomass for Energy and Industry*, C.A.R.M.E.N, Wuerzburg, Germany, pp 1099-1102. (Book contribution).

Were H.K and **Agong, S.G. 1998**. Cassava (*Manihot esculenta* Crantz). In N. El Bassam (Ed.) *Energy Plant Species: Their Use and impacts on the environment and development*. James and James Science Publishers, London, pp 118-124. (Book contribution; ISBN 1 873936 75 3).

Agong, S. G. 1997. Kenyan tomato landraces and their potential for use in the marginal lands. *International Conference on Sustainable Agriculture for Food, Energy and Industry*, Braunschweig-Völkenrode, Germany, Eds. El Bassam, Nasir; Behl, Rishi Kumar; Prochnow, Blair, London, Great Britain, James & James Science Publishers, London, pp 553-556. (Book contribution; ISBN 1 873936 75 2).

Agong, S.G, A. Fricke and H. Stuetzel. **2001**. Variations in tomato genotypes for tolerance to water deficit stress. (Sub. to *Scientia Horticulturae*).

Agong, S.G., Yoshida, Yozawa and M. Masuda. **2001**. Response of tomato (*Lycopersicon esculentum* L.) genotypes to induced salt stress. (Sub. African Crop Science Journal).

Agong, S.G., K. Kenji and M. Masuda. **2001**. Distinguishable identification protocol for male sterile tomato mutant T-4 derived via gamma ray-irradiation from cv. First (Submitted to *Euphytica*)

Mugai E.N., **Agong, S.G.** and H. Matsumoto. **2001**. Sensitivity of Al staining and root elongation procedures for verification of tolerance bean (*Phaseolus vulgaris* L.) varieties. (Sub. African Crop Science Journal)**.**

Mugai E.N., **Agong, S.G.** and H. Matsumoto. **2001**. Effect of liming an acid soil with calcite or dolomite on the performance of four common bean (*Phaseolus vulgaris* L.) varieties. (Sub. African Crop Science Journal)**.**

Mugai E.N., **Agong, S.G.** and H. Matsumoto. **2001**. Aluminium tolerance in four Kenyan bean (Phaseolus vulgaris L.) varieties. (Sub. JAST)**.**

Masinde, P.W., E.N. Murage, **Agong, S.G.**, H. Sugiura and M Masuda. **2001**. Flowering and leaf yield characteristics of kale and collard (*Brassica oleracea* var *oleracea*) grown during long and short rain seasons in Kenya. (Sub. African Crop Science Journal).

Shiomi, S. L. S. Wamocho and **Agong**, **S. G. 1996**. Ripening chacteristic of purple passion fruit on and off the vine. *Postharvest Biology and Technology* 7:161-170.

Mugai, E. N. and **Agong, S. G.**. **1996**. The response of 'Roscoco' beans to aluminium treatment. *African Crop Science Journal* 4 (2): 177-183.

Agong, S. G. **1993**. Seed extraction procedures for long term conservation of *Solanum nigrum*. *Seed Sci. & Technol*., 21,447-451.

Agong, S.G and S. Schittenhelm. **1993**. Collection of tomato *Lycopersicon esculentum* germplasm in Kenya. FAO/IPGRI Plant Genetics Resources *Newsletter* 96:51-54.

Agong, S. G. and P.O. Ayiecho. **1992**. Regression and correlation in grain amaranth (*Amaranthus hypochondriacus and A. creuntus*). *Indian Journal of Agriculture Sciences* 62 (12): 822-6.

Agong, S. G. and P.O. Ayiecho. **1991**. The rate of out-crossing in grain amaranths. *Plant Breeding* 107, 156-160.

Agong, S.G. 1999. Varietal differences in French beans (*Phaseolus vulgaris*) under Kenyan tropical conditions. Proceedings of 2nd National Horticulture Seminar. JKUAT, Nairobi, Kenya *in Agong et al. (eds.) pp 94-98 (ISBN 9966-923-61-6)*

Mugai E.N., **Agong, S.G.** and H. Matsumoto **1999**. Aluminium tolerance in four Kenyan bean (*Phaseolus vulgaris*) varieties. Proceedings of 2nd National Horticulture Seminar. JKUAT, Nairobi, Kenya *in Agong et al. (eds.) (1999) pp15-19 (ISBN 9966-923-61-6)*

Masinde, P.W., M Masuda, **Agong, S.G.** and H. Sugiura. **1999**. Premature flowering of collard (*Brassica oleracea* var *oleracea*) as influenced by genotype and season in Kenya. Proceedings of 2nd National Horticulture Seminar. JKUAT, Nairobi, Kenya *in Agong et al. (eds.) (1999) pp59-71(ISBN 9966-923-61-6).*

Sinthanathum S. **Agong, S.G.,** Chongoti, Ogutu W., Jira G., Watako A. O. and E. Wanja. **1999.** Preliminary Assessment of Pest Spectrum and Extent of Yield Benefit due to Protection from Pest on Okra and Snowpeas at JKUAT, Juja, Kenya. Proceedings of 2nd National Horticulture Seminar. JKUAT, Nairobi, Kenya *in Agong et al. (eds.) (1999) pp 38-39(ISBN 9966-923-61-6).*

Knapp M., **Agong, S.G.,** B. Loehr**. 1999.** Development of Red Spider Tolerant Tomato Varieties for Eastern and Southern African Regions. Proceedings of 2nd National Horticulture Seminar. JKUAT, Nairobi, Kenya *in Agong et al. (eds.) (1999) pp 140-142 (ISBN 9966-923-61-6)*

Michieka W. R. and **Agong, S. G. 1999.** Agriculture and environment. Trade and Environmental Seminar for Government and Civil Society, Zimbabwe, Harare, 7pg.

Agong, S.G. 1998. Phenotypic evaluation of Kenyan tomato germplasm: Chances for optimization of tomato production under Peri-urban conditions by use of landraces. International Conference on Peri-Urban Vegetable Production, Bangkok, Thailand.

Agong, S. G.; Ondieki F. N.; W. P. Masinde; H. Sugiura. **1998**. Optimization of two agronomic practices (harvesting frequency and nitrogen application) in *gynandropsis gynandra (*spider plant) for greater small-scale productivity. International Horticultural Congress, Brussels Belgium.

Agong, S.G. 1998. Expertise Gap In East Africa: The need for Training in Fruitfly Biology, Taxonomy and Management In Lux (ed.), Proceedings of African Fruit Fly Initiative, ICIPE, Duduville, Nairobi, Kenya.

Michieka W. R. and **Agong S. G. 1998.** Farming systems in the context of crop protection dynamics. Food security and governance in Africa, Durban, South Africa 8pg.

Agong, S. G., L. Turoop and R. W. Michieka. **1997**. Strategic weed management in tomato production under small scale farmer conditions in Kenya. *Proceedings of Weed Science Society of East Africa*.

Agong, S. G. **1997**. Utilization of low input crop varieties for accelerated horticultural growth and prosperity. *In* Agong S.G., L.S. Wamocho and F.K. Ombwara (eds.), *Proceedings of the National Horticulture Seminar on Progress and Prospects in Kenya's Horticulture Development Towards the Year 2000 and Beyond*. Department of Horticulture, Jomo Kenyatta University of Agriculture and Technology. pp 69-73 *(ISBN 9966-923-96-9)*.

Agong, S. G. **1997**.Electrophoretic evaluation of Kenyan tomato (*Lycopersicon esculentum* Mill.) landraces and their potential for increased tomato seed production. *In* Agong S.G., L.S. Wamocho and F.K. Ombwara (eds.), *Proceedings of the National Horticulture Seminar on Progress and Prospects in Kenya's Horticulture Development Towards the Year 2000 and Beyond*. Department of Horticulture, Jomo Kenyatta University of Agriculture and Technology. pp 174-187 *(ISBN 9966-923-96-9)*.

Agong, S.G., L.S. Wamocho and F.K. Ombwara (eds.). **1997**. Proceedings of the National Horticulture Seminar on Progress and Prospects in Kenya's Horticulture Development Towards the Year 2000 and Beyond. Department of Horticulture, Jomo Kenyatta University of Agriculture and Technology. pp 300. *(ISBN 9966-923-96-9)*.

Agong, S. G. **1996**. Groundnut (*Arachis hypogaea* (L.) Merr.). *In* N. El Bassam (ed.), Renewable Energy: Potential energy crops for Europe and the Mediteranean region. REU TECHNICAL SERIES 46, pp 73-74.

Agong, S. G, and S. Schittenhelm.**1996**. Utersuchungen an kenianischen Tomateniandrassen: Einfluss von Trockenheit und Versalzung auf Ertrag und Inhaltsstoffe. Jahresbericht, FAL. pp 35-36.

Agong, S. G, and M. Murakami.**1996**. Sludge for Kenyan Agricultural Purpose. ESALIA, The African Leather Magzine vol.1 No.2 pp 30-36.

Agong, S. G. **1999**. Biochemical and morphological evaluation of the Kenyan tomato (*Lycopersicon esculentum*) landraces.

Agong, S. G. **1996**. Cross compatibility of tomato landraces and market cultivars: A chance for tomato improvement in Kenya.

Agong, S. G. 1991. Role of genetic engineering in the improvement of horticultural plants in Kenya: *In* Agoki et al (eds). Technologies for development in the 21st Century and beyond, pp 541-545.

Agong, S. G. 1991. Plant breeding strategies for the sustainability of the small ruminants: In SR-CRISP Scientific Publications. pp 103-107.

Agong, S. G. **1989**. Reproductive performance of three sheep genotypes at Naivasha, Kenya. *In*, Okeyo M. (ed.) APSK annual sympossium, Naivasha, Kenya. pp 26-30.

Other publications:

Agong, S. G. **1995**. Collection and Evaluation of Kenyan Tomato Landraces with special reference to Salt and Drought tolerance. *Ph.D. Dissertation*, Justus-Liebig University Giessen, Germany.

Agong, S. G. **1989**. Out-crossing and Yield prediction in Grain Amaranths. *Msc*. *Thesis*, University of Nairobi, Kenya.

Agong, S. G. **1993**. Phytopathology with reference to plant genetic engineering (in German). International University Summer Academy, Neubeurn, Rosenheim, Germany. 8-22, August.

Agong, S. G. **1988**. Groundnut A Vital Crop for Kenya. Crop Science Department University of Nairobi, Kabete, Nairobi Kenya.

Agong, S. G., S. Shiomi & K. Kita. **1991**. "Ripening characteristic of fruits in Kenya (1) "-Fruits attached on the plant and those harvested at different maturities for passion fruits. *Final research project report*, JKUAT.

Agong, S. G., P. O. Obara & Shiomi. **1991**. Groundnut (*Arachis hypogea*) Improvement in Kenya. *Research project report*. JKUAT.

Shiomi S., E. N. Murage and **Agong, S. G**. **1991**. "Ripening characteristic of fruits in Kenya (1)". Banana production and comparison of the shelf life in some cultivars of bananas grown in Kenya. *Final research project report*, JKUAT.

Agong, S. G. **1990**. Studies on seven yield related traits in tomato *(Lycopersicon esculentum*) cultivars, unpublished report.

Agong, S. G. 1989. Sheep and Goat Development Project, Naivasha Station. *Annual Report.*

30. Participation in seminars, workshops and conferences

- February 2020, Cyber Security Seminar, Kisumu, Kenya
- June 2019, University Leadership Exchange Visit and Seminar, North West Agriculture and Forestry University, Yangling, China
- June 2019, Exchange Visit on Botanical Gardens, South China Botanical Garden, Guangzhou, China
- May 2019, Seminar on Food, Water and Energy Nexus, ECU, Oklahoma, USA
- November, 2018 Book Launch on Urban Food Security, London, UK
- November, 2018 Higher Education Meeting on ACE II, Kigali, Rwanda
- October 2018, 3rd Mistra Urban International Conference, UCT, Cape Town, South Africa
- November 2017, 2nd Mistra Urban International Conference, Kisumu, Kenya
- August 2017 International Meeting on Just Cities, London, UK
- July 2017, 1st Africa-China World Bank Sponsored Education, Beijing China
- January/February, 2013 MISTRA, Sweden for visit to Cape Town, SA attending International Meeting of M-UF.
- September 2016 1st International Mistra Urban Futures Conference in Sweden
- August 2016 Networking Meeting on Nourishing Space (Urban Food Security), UCT, South Africa.

- March 2015 International Meeting on Just Cities, Chalmers University of Technology, Gothenburg, Sweden.
- November, 2014 World Education Summit, Qatar und the support of the Qatar's Government. The WISE conducted an exclusive poverty alleviation with the framework of Africa, the effect on girl child education.
- May 2014 Brown University with the support of Brown University.
- December 2012, Dakar, Senegal, attending Afri-cities Conference, by Sida
- Sept 2012 World Urban Forum, Naples, Italy by Sida
- January/February, 2008 MISTRA, Sweden for visit to Chalmers
- June 2015. International meeting in sustainable urban development, Chalmers University of Technology
- March 2015. Governance. Greater Manchester, UK
- November, 2014. Global education summit, Qatar.
- June 2014. Engineering solutions to water, agriculture and energy, Brown University, USA
- October, 2010 International Workshop on Water and Sanitation, Gothenburg, Sweden
- September, 2010 Scientific Collaborative Meeting, Cape Peninsula University of Technology, Cape Town.
- March, 2010 UN-Habitat World Urban Forum, Rio de Janaero, Brazil
- February, 2010 Workshop on Interaction Platform on Urban Futures, Chalmers University of Technology, Sweden.
- June, 2009 Leadership and Management Workshop by the Office of the Prime Minister at GTI, Mombasa, Kenya
- February, 2009 MISTRA Workshop, Gothenburg, Sweden
- November, 2008 Alliance for Global Sustainability, Cape Town, South Africa
- October, 2008 UN-Habitat World Urban Forum, Nanjing, China
- September, 2007 ANSTI Conference, Pretoria, South Africa
- August, 2007 AAU Conference in Windhoek, Namibia
- November, 2006 Extra-ordinary AMCOST AU Conference, Cairo, Egypt
- October, 2006 ASADI Conference, Yaoundé, Cameroon
- October, 2006 Scientists and Policy Makers AU Congress, Alexandria, Egypt
- September, 2006 ICSU Conference, Johannesburg, SA
- May, 2006, Knowledge economy conference by the World bank, Johannesburg.

- May, 2006 Science and Technology Inter-Ministerial Meeting, ACP, Brussels.
- February, 2006 KNAW Visit on Science and Technology, Amsterdam
- January, 2006: Scientific and Technology Forum, Amsterdam, The Netherlands
- November 2005: Sustainable horticultural production in the tropics, Egerton, Njoro, Kenya
- November 2005 Nutritive and agronomic potential of Solanum spp, African Crop Science Society Conference, Entebe, Uganda.
- November 2005: Vice Chancellors, Provosts and Deans Conference in Science ad Technology in Accra, Ghana.
- October 2005: Role of African indigenous vegetables in poverty alleviation, agricultural development, 1st JKUAT scientific and industrialization conference.
- June 2005: Seed production systems for horticultural crops in the African context, Entebe, Uganda, FARA Conference.
- February 2005: Keynote Address Speaker at Global Horticultural Assessment Workshop in Arusha, Tanzania, under USAID-AVRDC sponsorship.
- February 2005: Contribution of agricultural research to national development in Rwanda, ISAR, Kigali.
- June 2004: Horticultural Congress in Kuala Lumpur, Malaysia.
- December 2004: Business Incubator workshop held at Safari Park Hotel, Nairobi.
- December, 2004: National Horticultural seminar on sustainable horticultural production in the tropics held in Moi University, Kenya.
- October 2004: AVRDC (The World Vegetable Centre) held in Arusha, Tanzania.
- October 2004: Kenya DAAD Scholars Association conference on "Universities and Communities: enhancing collaboration to build a working nation.
- September, 2004 "Resources, their Dynamics and Sustainability - Capacity Development Comparative and Integrative Approaches". Organized by Volkswagen Foundation and Department of Geography, University of Bonn held in Nairobi.
- June 2004: Greenhouses, Environmental Controls and In-house Mechanization for Crop Production in the tropics and sub-tropics held at Equatorial Hill Resort, Cameron Highlands, Pahang Malysia.
- May 2004: Queens University, Canada. Conference hosted by the Association of Commonwealth Universities (ACU).

- March, 2004: DAAD Alumni workshop on Kenya and Germany: Perspectives on working together as partners.
- March, 2004: Harare, Zimbabwe. Development of environmentally friendly management methods for red spider mites in small-holder tomato production systems in Eastern and Southern Africa.
- November 2003: National Horticultural seminar on sustainable horticultural production in the tropics held at Maseno University, Kenya.
- November 2003: DAAD Alumni Symposium on Alumni partners in Development Co-operation: Challenges, Best practices and Prospects held in Bonn, Germany.
- October 2003: AVRDC, Regional Centre for Africa, Arusha Tanzania.
- August, 2003: Attended a conference on Managing Change at the University of Abertay Dundee, Scotland.
- May, 2003: Participation in Agricultural Extension Education, Illinois University, Chicago under Illinois funding.
- August 2002: XXVIth International Horticultural Congress held at Toronto Ontaria, Canada.
- August, 2003: Attended a conference on Managing Change at the University of Abertay Dundee, Scotland.
- October 2003: AVRDC, Regional Centre for Africa, Arusha Tanzania.
- November, 2003: DAAD Alumni Symposium on Alumni partners in Development Co-operation: Challenges, Best practices and Prospects held in Bonn, Germany.
- November 2003: National Horticultural seminar on sustainable horticultural production in the tropics held at Maseno University, Kenya.
- March, 2004: Harare, Zimbabwe. Development of environmentally friendly management methods for red spider mites in small-holder tomato production systems in Eastern and Southern Africa.
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- September, 2004 “Resources, their Dynamics and Sustainability - Capacity Development Comparative and Integrative Approaches”. Organized by Volkswagen Foundation and Department of Geography, University of Bonn held in Nairobi.
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- October 2004: AVRDC (The World Vegetable Centre) held in Arusha, Tanzania.
- December, 2004: National Horticultural seminar on sustainable horticultural production in the tropics held in Moi University, Kenya.
- December 2004: Business Incubator workshop held at Safari Park Hotel, Nairobi.
- August 2002: National Horticultural Seminar JKUAT, Nairobi, Kenya.
- July 2002: Summer School, on Sustainable Horticulture, Hannover University Germany.
- December 2000: Environmental Education Workshop, KWS Training Institute, Naivasha, Kenya.
- November 2000: Bio-algeen Workshop, Blue Post Hotel, Thika, Kenya
- September 2000: Forum for Organic Management of Agriculture and Technology (FORMAT), Village Market, Girigiri, Nairobi, Kenya.
- January 1999: National Horticulture Seminar, JKUAT; Nairobi, Kenya. I organized this seminar which turned out to be a great success.
- February -March 1999: Organized Regional Group Training Program for Eastern and Southern African Countries at JKUAT under JICA financial support.
- August 1998: XXV International Horticultural Congress, Brussels, Belgium.
- September, 1998: International Conference on Peri-urban Vegetable Production, Bangkok, Thailand.
- June, 1997: International Conference on Sustainable Agriculture for Food, Energy and Industry, Braunschweig, Germany.
- May, 1997: ZOPP workshop for the GTZ-ITFSP, Abedares Coutry Club, Nyeri, Kenya.
- February, 1997: ARF - Workshop, KARI, Nairobi Kenya.
- January 1997: National Horticulture Seminar, Panafric Hotel, Nairobi, Kenya. I organized this seminar which turned out to be a great success.
- November 1996: GTZ - Portrade/HCDA vegetable and fruit seminar Utalii, Nairobi, Kenya.
- October 1996: System wide IPM-Funtional Agrobiodiversity taskforce meeting, ICIPE, Nairobi, Kenya.

- April 1994: Plant Genetic Resources Sympossina, (FAL, IPGR & IPGRI), Gatersleben, Germany.
- August 1993: International University Seminar, Neubwern, Roseheim, Germany.

30. ***Professional/Academic referees***

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