CURRICULUM VITAE
PROF. CAMILIUS A. SANGA - 2022
SOKOINE UNIVERSITY OF AGRICULTURE

1. PERSONAL PARTICULARS

1.1 First Name	:	Camilius Aloyce
1.2 Surname	:	Sanga
1.3 Nationality	:	Tanzanian
1.4 Date of Birth	:	March 8, 1975
1.5 Sex	:	Male
1.6 Marital Status	:	Married
1.7 Languages	:	English and Swahili

2. CONTACT

2.1 Mailing Address	:	Directorate of ICT, Sokoine University of Agriculture, P.O. Box 3218, Chuo Kikuu, **Morogoro, Tanzania**
Mobile phone	:	+255 655485593
2.2 E–mail address	:	csanga@gmail.com │sanga@sua.ac.tz

3. EDUCATION

PhD in Computer Science of University of the Western Cape, South Africa (2011); MSc. in Computer Science of Osmania University, India (2004); BSc. in Computer Science of University of Dar es Salaam, Tanzania (2001), ACSEE (1997), Azania Secondary School), CSE (1994, Njombe Secondary School)

3.1 PROFESSIONAL TRAINING:

Certificate in Online Education and Training
Institute of Education, University of London in collaboration with Tanzania Global Learning Centre
(TGLC)   January - April, 2005

4. EMPLOYMENT AND POSITIONS HELD

April 2018 to date	Professor (Full) of Informatics, Sokoine University of Agriculture
July 2014 – April 2018	Associate Professor of Informatics, Sokoine University of Agriculture
July 2011 – July 2014	Senior Lecturer, Sokoine University of Agriculture
July 2007 – July 2011	Lecturer, Sokoine University of Agriculture
July 2004 – July 2007	Assistant Lecturer, Sokoine University of Agriculture
March 2002 – July 2004	Tutorial Assistant, Sokoine University of Agriculture
Oct. 2001 – Feb. 2002	Website Designer & Database server administrator , Infocom Technologies, Dar es Salaam

5. LEADERSHIP & MANAGEMENT EXPERIENCE

i. Acting Director of Centre for Information and Communication Technology (CICT), SUA (January 2021 up to now)

RESPONSIBILITIES: to manage CICT so that the following functions are realized
- Managing of help desk, data centre and computing services;
- Offering technical support to those organization/companies that are tasked to accomplish any IT service within the university
- Support of IT usage and data security on university campuses

- Coordination of job requests (entry time for request, job schedule, staff allocated, feedback).
- Website hosting and management.
- Managing network systems and e-infrastructure.
- Maintenance and repair of hardware and other IT infrastructure to support smooth running of computer systems and applications.
- Developing and maintaining links with computer systems within and outside the country for the purpose of data communication.
- Co-ordination of the acquisition, installation and use of computer hardware and software in the University.
- Designing and conducting ICT training according to the demand and needs of the community
- Carrying out consultancy work12.Supervising and coordinating ICT projects for the purpose of ensuring high quality
- Designing and implementing ICT systems according to customer request
- Undertaking assignment related to research database management, data warehousing, data mining and develop computer and simulation models;
- Designing, implementing and administering the computer networks in the university
- Provision of web hosting services to various clients at agreed and approved rate.
- Managing computer laboratories and other ICT based educational infrastructure in classrooms.
- Supporting software applications related to teaching and learning including SUA student information system (SUASIS).
- Maintenance of software application for education management including software for financial management and human resource management.
- Promoting and supporting electronic learning (e-learning). This includes pedagogic issue and e-courses design and implementation. Furthermore it will support the blending of teaching and learning through face-to-face, electronic learning and mobile learning. E-learning can include instructional designing, e- learning training, content/course materials development, audiovisual experts' matters.
- Supporting consultation to both students and staff in using e-learning systems
- Managing video conferencing infrastructure
- Conducting research in computerization of Teaching, Learning, research, Extension and Public services for purpose of increasing the speed of information processing, and dissemination and therefore, to enhance speed and accuracy in decision making.
- Helping in system analysis of every software or information system to be recommended and adopted within the University.
- Software development and maintenance

ii.   Director of Sokoine National Agricultural University (SNAL), SUA (July 2020 – July 2023)

RESPONSIBILITIES: to manage SNAL so that the following functions are realized

- Serve the library and information needs of agricultural researchers, teachers, students, extension workers, farmers and peasants as well as any other group in need of such information,
- Supervise, coordinate, advise and offer consultancy and liaison services to all cooperating agricultural libraries in the United Republic for the purpose of improving the services they provide,

- Provide services such as reference, bibliography and library loans in the field of agriculture and related services,
- Undertake centralized technical services such as the selecting, ordering and cataloging of books and allied materials for the national agricultural library system,
- Act as national bibliographic and documentation centre involving being a repository of published and unpublished materials on agriculture and related fields, legal deposit right, indexing, abstracting and compilation of national agricultural bibliography,
- Establish and maintain Union catalogue for easy location of the material available in the system,
- Establish, maintain and promote cooperation with similar libraries and information centers at national and international levels for the purposes of maintaining a ready means of acquiring relevant literature,
- Collect and maintain records of agricultural research and development projects in progress or completed, so as for the Library to serve as a national clearing house for all agricultural materials,
- Finance, organize, and conduct or facilitate the conduct of in-service and professional training of its staff in order for the library to render efficient and effective services,
- Provide a national scientific literature services for current awareness and delivery of documents,
- Do anything or enter into any transaction which in the opinion of the Board is calculated to facilitate the proper and efficient carrying on of the activities of the Library and the proper exercise of its functions under this Act

iii. Head of Department of Informatics, Faculty of Science, Sokoine University of Agriculture (January 2011 to July 2017)

RESPONSIBILITIES:

- Managing students records in SUASIS
- Assisting in planning, budgeting and reporting activities
- Training staff and other users in the use Information and Communication Technology for teaching
- Representing the Department in different University meetings related to appointment and human resources, budgeting, examinations, quality assurance, research and technology transfer.
- Chairing all departmental meetings
- Planning of the curriculum for each course of BSc. Informatics
- Coordinating of the lecturing personnel in the Department
- Vote holder for the Department
- Coordinating the development of new curricular for the Department
- Coordination of teaching of all courses hosted in our department
- Supervising the curricular revision for BSc. Informatics and BSc. with Education (Informatics & Mathematics) as per University Qualification Framework provided by Tanzania Commission of Universities (TCU)

iv. Member, SUA Procurement Management Unit (PMU) (2012 – 2015)

RESPONSIBILITIES:

- Advise the SUA Management on matters pertaining to the procurement of goods and services and logistics management;
- Monitor adherence to procurement process and procedures as per Public Procurement Act;
- Develop an annual procurement Plan for the university;
- Procure, maintain and manage supplies, materials and services to support the logistical requirements of the university;
- Maintain and monitor distribution of office supplies and materials;
- Maintain and update inventory of goods, supplies and materials;
- Provide Secretariat services to the university Tender Board as per Public Procurement Act;
- Set specifications/standards for goods and services procured and monitor adherence to them to ensure value for money; and
- Prepare action plan, progress reports and budgets for the Unit.

6. RESEARCH EXPERIENCE

A: ON GOING PROJECTS

i. Enhancing Entrepreneurship, Innovation and Sustainability in Higher Education in Africa (EEISHEA) (2017 – 2021). Funded by European Union, Position: project coordinator at SUA
ii. InnovAfrica: Innovations in Technology, Extension and Institutional Approaches towards Sustainable Agri-Food Systems to Promote Food and Nutrition Security in Africa (From 2017-06-01 to 2021-05-31), Funded by European Union, Position: project team member
iii. Facilitating multi-stakeholder partnership to foster sustainable shark fisheries in Tanzania (01/01/2020 - 31/12/2021), Funded by Belgium under VLIR-UOS, Position: team member
iv. FOOD and Local, Agricultural, and Nutritional Diversity (FOODLAND project). (2020 – 2024). Funded by European Union, Position: project team member
v. Morogoro Youth Empowerment through Establishment of Social Innovation (YEESI) lab for problem-centered training in machine vision. (2021 – 2022). Funded by United States Agency for International Development (USAID) through the Partnerships for Enhanced Engagement in Research (PEER) program. Position project team member

B: COMPLETED PROJECTS

vi. E-learning and Problem Based Learning (2015-2016), Funded by DANIDA, Position: Project leader in e-learning group at SUA
vii. The role of mobile phones towards improving coverage of agricultural extension services: a case study of maize value chain, Funded by Norway (2012– 2016), Position: Assistant Project Leader
viii. Monitoring and Evaluation for 17 Projects under Enhancing Pro-poor Innovations in Natural Resources and Agricultural Value-chains (EPINAV) at SUA, Funded by Norway (2012 – 2016), Position: Team member
ix. Impacts of climate variability and change on agricultural systems in Eastern Africa while enhancing the region's capacity to undertake integrated assessment of vulnerabilities to future changes in climate – AGMIP, (2012 – 2014), Funded by United States Agency for International Development (USAID), UK Department for International Development's (UKaid) and the US Department of Agriculture, Position: Team member
x. Farmer Voice Radio (FVR) Project: Building a radio - based, impact driven small farmer extension service system (September 2011 – June 2012), Funded by Bill & Melinda Gates Foundation, 2012; Position: researcher

xi. Gender-based potential benefits and weaknesses of e-learning technology in higher learning institutions of Tanzania: the case of participation of female students in Science, Mathematics and Technology disciplines. Funded by Forum for African Women Educationalists-FAWE (2005-2006), Position: Project leader

7. TEACHING EXPERIENCE

i. **Teaching at Sokoine University of Agriculture (SUA)**
Since 2002, I have been involved in teaching undergraduate courses. These courses includes: CIT100 – Computer applications, INF201 – Human Computer Interaction, INF300 – Information System Analysis and Design, INF 301: Software Engineering, INF 302 – Database Implementation and Management, 309 – IT security, INF 210 – Research methodology for computing and information management

ii. **Teaching at Mzumbe University**
In 2015/2016, I am involved in teaching the following course as part time lecturer: ICT 6104: Advanced Database and Data Modeling

iii. **Teaching at University of Dodoma**
In 2011, I was involved in teaching the following courses as part time lecturer: MG 100 - Introduction to Information and Communication Technology, MG 203 – Database management system and MG 204 – Information resource management

iv. **Teaching at Iringa University College of Tumaini University**
In 2006, I was involved as part time lecturer in teaching a course titled "introduction to computer application" for undergraduate students

v. **Supervision of Field Practical Training (FPT) at SUA**
Since 2010, I have been involved in supervising FPT for students taking Certificate in information technology, Diploma in Information technology and BSc. Informatics.

vi. **Supervision of Final year special research project (SP) at SUA**
Since 2010, I have been supervising over 25 students in their SP. My research area of interest has primarily been ICT for Development.
This academic year 2019/2020 I have 5 students.

vii. **Examination of Thesis / Dissertation**
- In 2015, I have examined two PhD Dissertations from School of Computational and Communication Science and Engineering (COCSE), The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha
- In 2014, I have examined one MSc. thesis from Faculty of ICT, Tshwane University of Technology, South Africa
- In 2016, I have examined one MSc Dissertation from College of Computing and Information Sciences, Makerere University
- In 2016, I have examined one PhD thesis from Department of Computer Science, University of the Western Cape, South Africa
- In 2017, I have examined two PhD Dissertations from School of Computational and Communication Science and Engineering (COCSE), The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha
- In 2018, I have examined one PhD Dissertations from School of Computational and Communication Science and Engineering (COCSE), The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha

viii. **Supervision of undergraduate students**
- In academic year 2020/2021, I am supervising 5 students from Solomon Mahlangu College of Science and Education

^{ix.} **Supervision of postgraduate students**

A: STUDENTS WHO HAVE GRADUATED
- Name of student who completed Masters of rural development at SUA: KIBERITI BOAZ. S. REG: HD/T/SUA/DSI/61/2012, "Access and use of mobile phones for improving the coverage of agricultural extension services: a case study of Kilosa district" – 2013 / 2014, Role: main supervisor
- Name of student who completed Master of Science in Agricultural and Extension Education (specializing in Communication for Development) at Ohio State University: Elizabeth Lucas Isaya, "Sources of Agricultural Information for Women Farmers in Tanzania" – 2013 / 2014, Role: co-supervisor with Dr. Robert Agunga and Dr. Robert J. Birkenholz.
- Name of student undertaking PhD in IT security at Open University of Tanzania: Maduhu Mshangi, "Enhancement of Information systems security in Education Sector." – 2014 / 2017, Role: co-supervisor with Dr. Edephonce Ngemera Nfuka
- Name of student undertaking PhD in information studies at Sokoine University of Agriculture: Nicholaus Mwalukasa, "Assessment on use of mobile phones in accessing paddy information for climate change adaptation: Case study of Morogoro Region, Tanzania", 2016 – 2018, Role: co-supervisor with main supervisor, Prof. M.R.S. Mlozi
- Name of student undertaking PhD in e-Procurement at Moshi Co-operative University (MoCU): Meshack Loisujaki Siwandeti, 2018-2021, Role: co-supervisor with Dr. Geraldine A. Rasheli and Dr. A. Mfanga

B: ON GOING STUDENTS WHO HAVE NOT YET GRADUATED
(1)Name of student undertaking PhD in ICT for Agro-ecology at Sokoine University of Agriculture: Luambano Kihoma, 2018-2021, Role: co-supervisor with Dr. Ayubu Churi
(2)Name: Anna Mohamed Namala with REG. NO. PLS/D/2020/0002, PhD in information needs and information seeking for young first time mothers in Dar es Salaam Tanzania, Role: co-supervisor with Dr. P. Nyinondi

^{x.} **Review of publications for staff vying for promotion**
In 2017/2018, I was involved in reviewing publications of a staff from Institute of Finance Management (IFM) vying for promotion from Senior Lecturer to Associate Professor

^{xi.} **External Examiner**
I was an External Examiner of ICT courses at Mzumbe University (2013-2015) and currently, I am external Examiner of Information Systems courses for the Department of Information System at University of Dodoma

8. CONSULTANCY, EXTENSION AND OUTREACH EXPERIENCE

i. In November 2018 – December 2019, I was part of five researchers engaged in "Designing a real time information dashboard for the Ministry of Agriculture" as part of the 'Rapid response implementation support (RARIS) to the Ministry of Agriculture Lead Ministries' project. My role was to do MAPPING OF EXISTING DASHBOARD RELATED SYSTEMS AND PLATFORMS AND TYPE OF REAL TIME INFORMATION NEEDED FOR DASHBOARD

ii. In May – August 2019, I was part of three researchers engaged in doing terminal evaluation consultancy for a project titled 'Upscaling Technologies in Agriculture through Knowledge and Extension (UPTAKE)' of Farm Radio International (FRI). The project was funded by International Fund for Agricultural Development (IFAD) under the New Alliance ICT Extension Fund. My role was a coordinator of consultancy team from SUA COSE CONSULT.

iii. In July 2018, I was part of a team engaged to revise Sokoine University of Agriculture Intellectual Property Rights (IPR) Policy (the final draft is under review)

iv. In December 2016, I was part of a team engaged to develop Policy Brief for titled 'Delivery of agricultural extension service can be improved through mobile phones'. Available at http://hdl.handle.net/123456789/1008

v. From 2014 to date – I am part of SUA staff administering a mobile and web based farmers' advisory information system. The agro-advisory services are offered to at least 672 farmers in Kilosa District and other Districts of Tanzania through their Mobile Phones in real time (http://www.ushaurikilimo.or.tz/).

vi. In 2014 / 2015, I was part of team engaged to develop Information System for Monitoring and Evaluation Projects under Enhancing Pro-poor Innovations in Natural Resources and Agricultural Value-chains (EPINAV), SUA

vii. In December 2012 – February 2013, I was part of the team engaged to revise SUA ICT policy and guidelines

viii. In February & November 2013, I was part of resource persons engaged to train SUA academic staff on the use of IT in teaching and learning under University Teaching and Learning Improvement Programme (UTLIP)

ix. In November 2011 - March 2012, I was part of six-man consultancy team engaged by the National Bureau of Statistics to carry out a consultancy titled: "ICT Needs Assessment" through Mzumbe University, The study covered ICT needs assessment for the National Bureau of Statistics, A 66-page report was prepared, submitted and accepted by the client (i.e. NBS and World Bank – USA).

x. In September – November 2012, I was part of consultancy team from Tanzania, Kenya, Uganda and Rwanda engaged to revise ICT Master plan & ICT policy for Inter-University Council for East Africa (IUCEA)

xi. In 2012, I was a chairman of a team engaged in developing Software Requirements Specification Document for SUA Students' Information System (SUASIS)

9. MEMBERSHIP

i. Acting Director & CICT Board member, Centre for Information and Communication Technology (CICT), SUA (January 2021 up to now)

ii. Director & SNAL Board member, Sokoine National Agricultural Library (SNAL) (July 2020 up to now)

iii. Head of Education Technologies section in CICT (2018 -2020)

iv. External Examiner, Department of Information Systems, University of Dodoma, From 2018 up to date

v. Head of Department of Informatics, Member of Head of Department Meeting at Faculty of Science, Sokoine University of Agriculture (January 2011- July 2017)

vi. Patron, Informatics Club of students taking BSc. Informatics (2011- 2017)

vii. Member, SUA University Wide Outreach Committee (2015 - 2017)

viii. Member, SUA Computer Centre Board (2011 – 2014)

ix. Acting coordinator, Information Technology Consulting Bureau (ITCB) of SUA Computer Centre (2014 – 2015)

x. External Examiner, Department of ICT, Mzumbe University, from February 2012 to 2015

xi. Part time Lecturer, University of Dodoma, School of Humanities and Social Sciences from April. 2011 – 2013

xii. Part time Lecturer, Tumaini University, Iringa University College from Sept. 2005 – Feb. 2006

xiii. Head, IT Services Unit at SUA Computer Centre, November 2010 – 2012

xiv. Member, SUA Faculty of Science Board (2011- 2017)

xv. Member, SUA Procurement Management Unit (PMU) (2012 – 2015)

xvi.   Member, Sokoine University of Agriculture Academic Staff Association. (SUASA) (2002 to date)
xvii.   Coordinator, Computer Centre, Training and course, SUA, Oct. 2005 – Feb. 2006
xviii. Webmaster and web server administration, SUA, November 2004 – 2005

COMMUNITY INVOLVEMENT

xix.   Member, SUA Staff Ethics Committee, KKU
xx.   Keynote speech for 4TH CONFERENCE OF THE RANGELAND SOCIETY OF TANZANIA, Harnessing Multi-Actors Partnership (MAP) in Tanzania for Enhancing Agriculture and Market (TEAM) through Smart ICT, Edema – Morogoro, 16-17 March 2020. Tanzania
xxi.   Member, Wakazi group – Community Water Management at Kilakala (2017 – up to now)
xxii.   Member, Technical program committee for 2019 IEEE 4th International Conference on Computer and Communication Systems http://www.icccs.org/committee.html
xxiii. Member, Peer reviewer in an International Journal of Education and Development using ICT. URL: http://ijedict.dec.uwi.edu/editors.php (2007 to date)
xxiv.   Member, Program Committee – Notes reviewer for the 5thInternational Conference on Information and Communication Technologies and Development (ICTD2013) hosted at the University of Cape Town, December 7 - 10 2013, Cape Town, South Africa.
xxv.   Member, Program Committee – Notes reviewer for the 8thInternational Conference on Information and Communication Technologies and Development (ICTD2016), to be hosted at the *University of Michigan* from *June 3-6, 2016*
xxvi.   Member, Program Committee – Notes reviewer for the 7thInternational Conference on Information and Communication Technologies and Development (ICTD2015), 15-18 May 2015, Singapore
xxvii. Member, Technical Program Committee, Pan African Conference on Science, Computing and Telecommunications PACT 2014, Arusha, Tanzania. http://www.ib2com.org/PACT/ July 14 - 17, 2014 Co-Hosted by La Trobe University Australia and Nelson Mandela African Institution of Science and Technology, Tanzania

10. BOOK, BOOK CHAPTER, PAPER AND ARTICLE PUBLICATIONS

10.1 BOOK

i. **Sanga, C**., Magesa, M. & Kayunze, K. (2011). eLearning Technology-Enabling Science Education to Female Students: The Case Study of Tanzania Universities , Lap Lambert Academic Publishing Ag & Co Kg, ISBN: 9783844381856, Germany. URL: http://www.amazon.co.uk/Learning-Technology-enabling-Science-Education-Students/dp/3844381856

ii. **Sanga, C**., Kadeghe, F. & Kilima, F.T.M. (2012). Projects Monitoring and Evaluation Information System, Lap Lambert Academic Publishing Ag & Co Kg, ISBN 9783845420271, Germany. URL: http://www.amazon.co.uk/Projects-Monitoring-Evaluation-Information-System/dp/3845420278/ref=sr_1_2?s=books&ie=UTF8&qid=1338881961&sr=1-2

10.2 BOOK CHAPTERS

i. M.P.J Mahenge, C.A. Sanga. (2022). Towards Developing a Fast Reliable Instant E-learning Networks of Distributed Systems (FRIENDS) for Higher Education Institutions in Tanzania. (Ed.André Ratté). *Education Systems: Past, Current and Future Trends*. ISBN: 978-1-68507-766-2. https://novapublishers.com/shop/education-systems-past-current-and-future-trends/

ii. Siwandeti M., **Sanga C.**, Mfanga A., Panga F. (2021) Vendors' Willingness Drivers for Participation in Public Electronic Procurement System, Ilala District, Tanzania. In: Mojekwu J.N., Thwala W., Aigbavboa C., Atepor L., Sackey S. (eds) *Sustainable Education and Development*. Springer, Cham. https://doi.org/10.1007/978-3-030-68836-3_38

iii. V. Liakos, G. Fastelini, C. Schillaci, T. Crestey, B Tisseyre, S. Fountas, E. Anastasiou, M. Acutis, A. Kayad, F. Marinello, L. Sartori, G. Vellidis, A. Mendes, J. P. Velez, Kadeghe G., E. Morimoto, S. D. Tumbo, **C. A. Sanga**. (2020). Precision farming and IoT case studies across the world, (Editor(s): Annamaria Castrignanò, Gabriele Buttafuoco, Raj Khosla, Abdul M. Mouazen, Dimitrios Moshou, Olivier Naud). Agricultural Internet of Things and Decision Support for Precision Smart Farming, Academic Press, Pages 331-415, ISBN 9780128183731 (http://www.sciencedirect.com/science/article/pii/B978012818373100007X)

iv. **Sanga, C. A**., Lyimo, N. N., Fue, K. G., Telemala, J. P., Kilima, F., & Kipanyula, M. J. (2018). Piloting Crowdsourcing Platform for Monitoring and Evaluation of Projects: Harnessing Massive Open Online Deliberation (MOOD). In *Crowdsourcing and Knowledge Management in Contemporary Business Environments* (pp. 199-217). IGI Global.

v. Kagombe, B. M., Mahenge, M. P., Komba, S. C., Mafu, S. T., & **Sanga, C. A.** (2018). Assessment of Challenges of Teaching and Learning Computer Programming in Tanzanian Higher Education: The Case of Sokoine University of Agriculture. In L. Makewa, B. Ngussa, & J. Kuboja (Eds.), *Technology-Supported Teaching and Research Methods for Educators* (pp. 33-50). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-5915-3.ch002

vi. **Sanga, C. A**., Ndyetabula, D. W., Komba, S. C., & Mafu, S. (2018). Informatics Education Enhanced by Problem-Based Learning Model via E-Learning: Experience From BSU Project at SUA. In *Handbook of Research on Program Development and Assessment Methodologies in K-20 Education* (pp. 393-417). IGI Global.

vii. Shirima, C., & **Sanga, C. A**. (2017). Assessment of Contribution of ICT for Sustainable Livelihoods in Kilosa District. In T. Tossy (Ed.), *Information Technology Integration for Socio-Economic Development* (pp. 260-283). Hershey, PA: Information Science Reference. doi:10.4018/978-1-5225-0539-6.ch010, ISBN13: 9781522505396

viii. Kibirige, G. W., & **Sanga, C. A**. (2016). Attacks in Wireless Sensor Networks. In D. G., M. Singh, & M. Jayanthi (Eds.), *Network Security Attacks and Countermeasures* (pp. 157-175). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-8761-5.ch005,ISBN13: 9781466687615

ix. Kipanyula, M. J., **Sanga, C. A**., Geofrey, A. M., & Fue, K. G. (2015). On Piloting Web-Based Rabies Surveillance System for Humans and Animals: Web-Based Rabies Surveillance System. In T. Iyamu, & A. Tatnall (Eds.) *Maximizing Healthcare Delivery and Management through Technology Integration* (pp. 305-323). Hershey, PA: Medical Information Science Reference. doi:10.4018/978-1-4666-9446-0.ch017,ISBN13: 9781466694460

x. **Sanga, C. A**., & Kibirige, G. (2015). Applying Kolb Learning Experiential Theory with Cloud Computing in Higher Education Institutions: Tanzania. In N. Rao (Ed.), *Enterprise Management Strategies in the Era of Cloud Computing* (pp. 104-136). Hershey, PA: Business Science Reference. doi:10.4018/978-1-4666-8339-6.ch005, ISBN13: 9781466683396

xi. **Sanga, C. A.,** Tumbo, S. D., & Mlozi, M. R. (2014). System Design and ICT Adoption in Agricultural Extension Services Delivery in Tanzania. In K. Bwalya (Ed.), *Technology Development and Platform Enhancements for Successful Global E-Government Design* (pp. 282-306). Hershey, PA: Information Science Reference. doi:10.4018/978-1-4666-4900-2.ch015, ISBN13: 9781466649002, ISBN10: 1466649003, EISBN13: 9781466649019

xii. Sife, A.S., Lwoga, E.T., & **Sanga, C**. (2009). New technologies for teaching and learning: challenges for higher learning institutions in developing countries. IN: Mukherjee, D. (ed) *Information and Communication Technology: Changing Education*. India: Icfai University Press. pp: 160 – 175. ISBN: 978 314 2308.

xiii. **Sanga, C**., Churi, A.J., & Tumbo, S. Status, Opportunities, Potential and Challenges of Technology-Mediated Open and Distance Education (Tech-MODE) for Agricultural

Education and Improved Livelihoods A case study of Tanzania, July 2007. *Commonwealth of Learning (COL) for Technology-Medicated Open and Distance Education for Agricultural Education and Improved Livelihoods in Sub-Saharan Africa: country case studies*, Vancouver, Canada. pp.113-133. URL: http://www.col.org/SiteCollectionDocuments/TechMODE_report_online.pdf

10.3 JOURNAL ARTICLES

i. Mahenge, M. P. J., Li, C., & Sanga, C. A. (2022). Energy-efficient task offloading strategy in mobile edge computing for resource-intensive mobile applications. *Digital Communications and Networks. ISSN 2352-8648,* https://doi.org/10.1016/j.dcan.2022.04.001.

ii. Luambano, K., Ayubu, J. C., Camilius, A. S., & Eugenio, T. (2021). Factors influencing smallholder farmers to participate in farmer-led research of agro-ecological practices in selected areas, Tanzania. *Journal of Agricultural Extension and Rural Development*, 13(4), 232-242.

iii. Siwandeti, M. L., Sanga, C., & Panga, F. (2021). Technological factors influencing vendors' participation in public electronic procurement system in Ilala, Tanzania. *East African Journal of Social and Applied Sciences (EAJ-SAS)*, *3*(1), pp. 91-102.

iv. Siwandeti, M.L., Sanga, C., & Panga, F. (2021). Perceived benefits of participation in public electronic procurement: a comparative analysis of vendors in Ilala district, Tanzania. *Journal of Co-operative and Business Studies (JCBS),* 6(1), pp. 165-174.

v. Lyimo, N. N., Shao, Z., Ally, A. M., Twumasi, N. Y. D., Altan, O., & **Sanga, C. A**. (2020). A Fuzzy Logic-Based Approach for Modelling Uncertainty in Open Geospatial Data on Landfill Suitability Analysis. *ISPRS International Journal of Geo-Information*, *9*(12), 737.

vi. Barakabitze, A.A., William-Andey Lazaro, A., Ainea, N., Mkwizu, M.H., Maziku, H., Matofali, A.X., Iddi, A., & Sanga, C. (2019). Transforming African Education Systems in Science, Technology, Engineering, and Mathematics (STEM) Using ICTs: Challenges and Opportunities. *Education Research International*, *vol. 2019, Article ID 6946809, 29 pages, 2019. https://doi.org/10.1155/2019/6946809*.

vii. Mahenge, M. P., Li, C., & Sanga, C. A. (2019). Mobile Edge Computing: Cost-Efficient Content Delivery in Resource-Constrained Mobile Computing Environment. *International Journal of Mobile Computing and Multimedia Communications (IJMCMC), 10*(3), 23-46. doi:10.4018/IJMCMC.2019070102

viii. Mwalukasa, N., Mlozi, M. R., & Sanga, C. A. (2018). Influence of socio-demographic factors on the use of mobile phones in accessing rice information on climate change adaptation in Tanzania. *Global Knowledge, Memory and Communication*. https://doi.org/10.1108/GKMC-01-2018-0006

ix. Mshangi, M., Nfuka, E. N., & **Sanga, C.** (2018). Human Sensor Web Crowd Sourcing Security Incidents Management in Tanzania Context. *Journal of Information Security*, *9*(03), 191-208.

x. Agunga, R., **Sanga, C. A**., & Isaya, E. (2018). Empowering Women Farmers in Tanzania Through Communication for Development. World Journal of Social Science, *5*(2). 8-21

xi. Tumbo, S. D., Mwalukasa, N., Fue, K. G., Mlozi, M. R., Haug, R., & **Sanga, C.** (2018). Exploring Information Seeking Behavior of Farmers' in Information Related to Climate Change Adaptation Through ICT (CHAI). *The International Review of Research in Open and Distributed Learning, 19*(3). 299-319.

xii. Msoffe, G., Chengula, A., Kipanyula, M. J., Mlozi, M. R., & **Sanga, C. A**. (2018). Poultry Farmers' Information needs and Extension advices in Kilosa, Tanzania: Evidence from Mobile-based Extension, Advisory and Learning System (MEALS). Library Philosophy and Practice, 1-17. URL: https://digitalcommons.unl.edu/libphilprac/1710/

xiii. Tarimo, B. R., & **Sanga, C. A.** (2017). HArnessing Multi-Stakeholders Involvement in Result Based Aquaculture (HASIRA) Extension Service in Tanzania. *International Journal of Information*

Communication Technologies and Human Development (IJICTHD), 9(4), 45-57.

xiv. Geofrey, A., Kipanyula, M. J., Fue, K., & **Sanga, C**. (2017). Understanding Strategies for Implementing Integrated Information Systems for Rabies Surveillance. *International Journal of User-Driven Healthcare (IJUDH)*, 7(1), 13-26.

xv. Mshangi, M., Nfuka, E. N., & **Sanga, C**. (2017). An Innovative Soft Design Science Methodology for Improving Development of a Secure Information System in Tanzania Using Multi-Layered Approach. *Journal of Information Security*, 8(03), 141-165

xvi. Juma, M. F., Fue, K. G., Barakabitze, A. A., Nicodemus, N., Magesa, M. M., Kilima, F. T. M., & **Sanga, C. A.** (2017). Understanding Crowdsourcing of Agricultural Market Information in a Pilot Study: Promises, Problems and Possibilities (3Ps). *International Journal of Technology Diffusion (IJTD)*, 8(4), 1-16.

xvii. Fue, K.F., **Sanga, C.A.**, Tumbo, S.D. (2017). Ecawsoft: A Web based Climate and Weather Data Visualization for Big Data Analysis, *Global Journal of Computer Science and Technology (GJCST)*, 17(1), 33-44. ISSN:0975-4172Online, ISSN:0975-4350Print, URL: https://globaljournals.org/GJCST_Volume17/5-Ecawsoft-A-Web-based.pdf

xviii. Shimba, M., Mahenge, M. P. J., &**Sanga, C. A**. (2017). Virtual labs versus hands-on labs for teaching and learning computer networking: A comparison study. *International Journal of Research Studies in Educational Technology*, *6*(1), 43 -58. ISSN: 2243-7738, ISSN: 2243-7746 Online, URL:https://www.learntechlib.org/p/174391/

xix. Fue, K., Geoffrey, A., Mlozi, M.R.S., Tumbo, S.D., Haug, R., &**Sanga, C.A.** (2017). Analyzing Usage of Crowdsourcing Platform 'Ushaurikilimo' by Pastoral and Agro-Pastoral Communities in Tanzania, *International Journal of Instructional Technology and Distance Learning*, 13 (12), 3-22. ISSN:1550-6908 , URL: http://www.itdl.org/Journal/Dec_16/Dec16.pdf

xx. Barakabitze, A. A., Fue, K. G., &**Sanga, C. A**. (2017). The Use of Participatory Approaches in Developing ICT-Based Systems for Disseminating Agricultural Knowledge and Information for Farmers in Developing Countries: The Case of Tanzania. *The Electronic Journal of Information Systems in Developing Countries*, *78* (1), 1-23. ISSN: 1681-4835, URL:www.is.cityu.edu.hk/staff/isrobert/ejisdc/78-8.pdf

xxi. Mshangi, M., Nfuka, E. N., &**Sanga, C**. (2016). Designing Secure Web and Mobile-Based Information System for Dissemination of Students' Examination Results: The Suitability of Soft Design Science Methodology. *International Journal of Computing & ICT Research*, *10*(2), 10-40. ISSN:1818-1139 Print, ISSN:19961065 Online, URL: http://ijcir.mak.ac.ug/volume10-issue2/article2.pdf

xxii. Kilima, F. T. M., Sife, A. S., &**Sanga, C**. (2016). Factors Underlying the Choice of Information and Communication Technologies among Small holder Farmers in Tanzania. *International Journal of Computing & ICT Research*, *10*(2), 41-62.ISSN:1818-1139 Print, ISSN:19961065 Online, URL:http://ijcir.mak.ac.ug/volume10-issue2/article3.pdf

xxiii. Barakabitze, A. A., Fue, K. G., Kitindi, E. J., &**Sanga, C. A**. (2016). Developing a Framework for Next Generation Integrated Agro Food-Advisory Systems in Developing Countries. *International Journal of Information Communication Technologies and Human Development (IJICTHD)*, *8*(4), 13-31. ISSN: 1935-5661,EISSN: 1935-567X, URL: https://www.igi-global.com/article/developing-a-framework-for-next-generation-integrated-agro-food-advisory-systems-in-developing-countries/163422, DOI: 10.4018/IJICTHD.2016100102

xxiv. Sanga**, C.A.**, Masamaki, J.P., Fue, K.G., Mlozi, M.R.S., Tumbo. S. D. (2016). Experimenting Open Agricultural Extension Service in Tanzania: a case of Kilosa Open Data Initiative (KODI). *Journal of Scientific and Engineering Research (JSAER)*. 3(6), 116-124. ISSN: 2394-2630, URL: **http://jsaer.com/download/vol-3-iss-6-2016/JSAER2016-03-06-116-124.pdf**

xxv. Sanga**, C**., Mlozi, M., Haug, R., &Tumbo, S. (2016). Mobile learning bridging the gap in agricultural extension service delivery: Experiences from Sokoine University of Agriculture, Tanzania. *International Journal of Education and Development using ICT* [Online], 12(3), 108-127. ISSN: 1814-0556, URL: http://ijedict.dec.uwi.edu/viewarticle.php?id=2201.

xxvi. Sanga**, C. A**., Phillipo, J., Mlozi, M. R., Haug, R., &Tumbo, S. D. (2016). Crowdsourcing platform

'Ushaurikilimo' enabling questions answering between farmers, extension agents and researchers. *International Journal of Instructional Technology and Distance Learning*, 10 (13), 19-28.ISSN:1550-6908 , URL: http://www.itdl.org/Journal/Oct_16/Oct16.pdf#page=24

xxvii.Kiberiti, B. S., **Sanga, C. A.**, Mussa, M., Tumbo, S. D., Mlozi, M. R., &Haug, R. (2016). Farmers' Access and Use of Mobile Phones for Improving the Coverage of Agricultural Extension Service: A Case of Kilosa District, Tanzania. *International Journal of ICT Research in Africa and the Middle East (IJICTRAME), 5*(1), 35-57. ISSN: 2472-3126, EISSN: 2472-3134, doi:10.4018/IJICTRAME.2016010103,https://www.igi-global.com/article/farmers-access-and-use-of-mobile-phones-for-improving-the-coverage-of-agricultural-extension-service/163394

xxviii.Mlozi, M.R.S., Mussa, M., Mapunda, K.M., Kalungwizi, V.J., Mwakapina, W. J., Tumbo. S. D. &**C. Sanga**. (2016). Unlocking the Potential of the Mobile Phones by University Undergraduate Students: a case of Sokoine University of Agriculture, *International Journal of Computing and ICT Research (IJCIR)*, 10 (1), 41-60. ISSN 1996-1065 online, ISSN 1818-1139 print,URL:http://ijcir.mak.ac.ug/volume10-issue1/article5.pdf

xxix.Isaya, E. L., Agunga, R., &Sanga, C. A. (2016). Sources of agricultural information for women farmers in Tanzania. *Information Development*. ISSN: 0266-6669, Online ISSN: 1741-6469, doi: 10.1177/0266666916675016, URL:
http://journals.sagepub.com/doi/abs/10.1177/0266666916675016

xxx.Mussa, M., Kipanyula, M. J., Angello, C., &**Sanga, C. A**. (2016). Evaluation of livestock information network knowledge system (LINKS) based on user satisfaction. *International Journal of Information and Communication Technology Research*, 6 (8), 1-16. ISSN:2223-4985,URL:
http://esjournals.org/journaloftechnology/archive/vol6no8/vol6no8_3.pdf

xxxi.Mahenge, M. P. J., &**Sanga, C.** (2016). ICT for e-learning in three higher education institutions in Tanzania. *Knowledge Management & E-Learning (KM&EL), 8*(1), 200–212.ISSN:2073-7904, URL:http://www.kmel-journal.org/ojs/index.php/online-publication/article/view/530/303

xxxii.Kipanyula, M. J., Geofrey, A. M., Fue, K. G., Mlozi, M. R., Tumbo, S. D., Haug, R., &**Sanga, C. A.** (2016). Web and Mobile Phone Based Rabies Surveillance System for Humans and Animals in Kilosa District, Tanzania. *International Journal of Information Communication Technologies and Human Development*, 8(2), 47-59.ISSN: 1935-5661, EISSN: 1935-567X, URL:
http://dl.acm.org/citation.cfm?id=2943414,DOI: 10.4018/IJICTHD.2016040104

xxxiii.Al Lily, A., Foland, J., Stoloff, D., Gogus, A., Erguvan, I., Awshar, M., Tondeur, J., Hammond, M., Venter, I., Jerry, P., Vlachopoulos, D., Oni, A., Liu, Y., Badosek, R., López de la Madrid, M., Mazzoni, E., Lee, H., Kinley, K., Kalz, M., Sambuu, U., Bushnaq, T., Pinkwart, N., Adedokun-Shittu, N., Zander, P., Oliver, K., Pombo, L., Sali, J., Gregory, S., Tobgay, S., Joy, M., Elen, J., Jwaifell, M., Said, M., Al-Saggaf, Y., Naaji, A., White, J., Jordan, K., Gerstein, J., Yapici, I., **Sanga, C**., Nleya, P., Sbihi, B., Lucas, M., Mbarika, V., Reiners, T., Schön, S., Sujo-Montes, L., Santally, M., Häkkinen, P., Al Saif, A., Gegenfurtner, A., Schatz, S., Vigil, V., Tannahill, C., Partida, S., Zhang, Z., Charalambous, K., Moreira, A., Coto, M., Laxman, K., Farley, H., Gumbo, M., Simsek, A., Ramganesh, E., Birzina, R., Player-Koro, C., Dumbraveanu, R., Ziphorah, M., Mohamudally, N., Thomas, S., Romero, M., Nirmala, M., Cifuentes, L., Osaily, R., Omoogun, A., Seferoglu, S., Elçi, A., Edyburn, D., Moudgalya, K., Ebner, M., Bottino , R., Khoo, E., Pedro, L., Buarki, H., Román-Odio, C., Qureshi, I., Khan, M., Thornthwaite, C., Kerimkulova, S., Downes, T., Malmi, L., Bardakci, S., Itmazi, J., Rogers, J., Rughooputh, S., Akour, M., Henderson, J., de Freitas, S. and Schrader, P. (2017). Academic domains as political battlegrounds: A global enquiry by 99 academics in the fields of education and technology. *Information Development*. 33 (3), 270-288, ISSN: 0266-6669, Online ISSN: 1741-6469, doi: 10.1177/0266666916646415.http://journals.sagepub.com/doi/abs/10.1177/0266666916646415

xxxiv.Fue, K. and **Sanga, C.** (2015) Remote Scheduling System for Drip Irrigation System Using Geographic Information System. *Journal of Geographic Information System*, 7, 551-563. doi: 10.4236/jgis.2015.75044.http://www.scirp.org/jouRNAl/PaperInformation.aspx?PaperID=6

0833

xxxv.Barakabitze, A. A., Kitindi, E. J., **Sanga, C**., Shabani, A., Philipo, J., & Kibirige, G. (2015). New technologies for disseminating and communicating agriculture knowledge and information (AKI): Challenges for Agricultural Research Institutes (ARI) in Tanzania. *The Electronic Journal of Information Systems in Developing Countries (EJISDC)*, 70, 2, 1-22. URL: http://www.is.cityu.edu.hk/staff/isrobert/ejisdc/70-2.pdf

xxxvi.Sanga**, C**. & Venter I. M. (2015). Algorithm for the evaluation of Free and Open Source Software when the Evaluator is "Uncertain", *International Journal of Management Science and Information Technology (IJMSIT)*; 3(17), 36 – 55. ISSN:1923-0265 Print, ISSN:1923-0273 Online, URL: http://www.naisit.org/journal/paper/id/140

xxxvii.Njelekela, C. &**Sanga, C**. (2015). Contribution of Information and Communication Technology in Improving Access to Market Information among Smallholder Farmers: The case study of Kilosa District, *International Journal of Management Science and Information Technology (IJMSIT)*; 3(17), 56 – 71. ISSN:1923-0265 Print, ISSN:1923-0273 Online, URL:www.naisit.org/journal/paper/id/141

xxxviii.Barakabitze, A. A., Kitindi, E. J., **Sanga, C**., Kibirige, G., & Makwinya, N. (2015). Exploring Students' Skills and Attitudes on Effective Use of ICTs: Case Study of Selected Tanzanian Public Secondary Schools. *Universal Journal of Educational Research*, *3*(6), 407-425.ISSN: 2332-3205 Print, ISSN: 2332-3213 Online, URL: http://www.hrpub.org/journals/article_info.php?aid=2724

xxxix.Kibirige, G. W., &**Sanga, C.** (2015). A Survey on Detection of Sinkhole Attack in Wireless Sensor Network. *International Journal of Computer Science and Information Security*, 13 (5), 1-9. ISSN:1947 5500, URL: https://ia601502.us.archive.org/5/items/JournalOfComputerScienceIJCSISMay2015/Journal%20of%20Computer%20Science%20IJCSIS%20May%202015.pdf

xl.Mshangi, M., Nfuka, E. N., **Sanga, C**. (2015). Using Soft Systems Methodology and Activity Theory to Exploit Security of Web Applications against Heartbleed Vulnerability, *International Journal of Computing and ICT Research (IJCIR)*, 8 (2), 32 – 52. ISSN:1996-1065 online, ISSN:1818-1139 print, URL: http://www.ijcir.mak.ac.ug/volume8-number2/article4.pdf

xli.Kitindi, E. J., Alex, A, **Sanga, C**., Shabani, A., Kibirige, G., Phillip, J., & Oketchi, J. (2014). Mobile phone based payment authentication system: An intervention for customers' bank account fraud in Tanzania, *International Journal of Information and Communication Technology Research (IJICTR)*, 4 (9), 325 – 337. ISSN:2223-4985 URL:http://esjournals.org/journaloftechnology/archive/vol4no9/vol4no9_1.pdf

xlii.Nfuka, E. N., **Sanga, C**., & Mshangi, M. (2014). The Rapid Growth of Cybercrimes Affecting Information Systems in the Global: Is this a Myth or Reality in Tanzania?.*International Journal of Information Security Science*, *3*(2), 182-199.ISSN: 2147-0030, URL: http://www.ijiss.org/ijiss/index.php/ijiss/article/view/72

xliii.Sanga**, C**., Mussa, M., Tumbo, S., Mlozi, M., Muhiche, L., &Haug, R. (2014). On the Development of the Mobile based Agricultural Extension System in Tanzania: A Technological Perspective. *International Journal of Computing & ICT Research*, *8*(1), 49-67

xliv.Emmanuel, P., **Sanga, C**., &Magalla, Asherry B. P. (2014). Realising the Potential of ICT in Human Rights Promotion in Tanzania, *Working Paper Series on ICT for Development*, 4 (1), 110-136

xlv.Sanga**, C.,** Kalungwizi, V., and Msuya, C. (2014). Bridging Gender Gaps in Provision of Agricultural Extension Service using ICT: Experiences from SUA FVR project in Tanzania, *International Journal of ICT Research and Development in Africa (IJICTRDA)*, Volume 4, Issue 1, 1-19

xlvi.Sanga**, C**., Magesa, M., Chingonikaya, E., and Kayunze, K. (2013). Can e-learning promote participation of female students in STEM disciplines in higher learning institutions of Tanzania?. *International Journal of Education and Development using ICT*, ISSN: 1814-0556, *9*(3), pp. 86-102

xlvii. Sanga**, C.**, Tumbo, S.D., Mlozi, M.R.S, and Kilima, F. T.M. (2013). Stakeholders' Analysis using Value Chain Analysis: AHP in action. *International Journal of Interdisciplinary Studies on Information Technology and Business (ISITB)*, ISBN: ISSN 1923-970X (Print), ISSN 1923-9718 (On-line), ISSN 1923-9726 (CD-ROM), Volume 1,Issue 2, pp. 85 - 104

xlviii. Sanga**, C.**, Kadeghe, F., Nicodemus, N., and Kilima, F.T.M. (2013). Web-based System for Monitoring and Evaluation of Agricultural Projects'. *International Journal of Interdisciplinary Studies on Information Technology and Business (ISITB)*,ISBN: ISSN 1923-970X (Print), ISSN 1923-9718 (On-line), ISSN 1923-9726 (CD-ROM), Volume 1, Issue 1, North American Institute of Science & Information, pp. 17-43

xlix. Sanga**, C.**, Kalungwizi, V., and Msuya, C. (2013). Building agricultural extension services system supported by ICTs in Tanzania: Progress made, Challenges remain. *International Journal of Education and Development using ICT*, ISSN: 1814-0556, Volume 9, Issue 1, pp. 80-99

l. Sanga**, C.**; Mlozi, M.R.S.; Tumbo, S.; Mussa, M.; Shetto, M.C.R.; Mwamkinga, G.H. and Haug. R. (2013). On search for strategies to increase the coverage of agricultural extension service: Web based Farmers' Advisory Information System, *International Journal of Computing and ICT Research* (IJCIR), ISSN 1996-1065 (online), ISSN 1818-1139 (print), 7 (1), pp. 42-55

li. Sanga**, C.**, and Buzingo, J. (2013). Factors Influencing the Adoption and Use of ICT by Small and Medium Sized Enterprises in Tanzania: A Case Study of Kilosa District, ICT for Development Working Paper Series, Volume 3, Issue 2, ISSN 2307- 0099, pp.77-93

lii. Sife, A., Lwoga, E., and **Sanga, C.** (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development using ICT* [Online], Vol. 3, Issue 2,pp. 57-67, ISSN: 1814-0556. URL: http://ijedict.dec.uwi.edu/viewarticle.php?id=246

liii. Sanga**, C.** & Venter, I. M. (2009). Is a multi-criteria evaluation tool reserved for experts? The *Electronic Journal of Information Systems Evaluation* (EJISE).Volume 12, Issue 2, pp. 165 – 176, ISSN 1566-6379. URL: www.ejise.com/issue/download.html?idArticle=556

liv. Sanga**, C.**, Kilima, J. and Busagala, L.S. P. (2010). Optimizing Internet Bandwidth in Higher Learning Institutions: A Case of Sokoine University of Agriculture. *International Journal of Computing and ICT Research*, Vol. 4, Issue 2, pp. 27-36, ISSN 1996-1065 URL: http://www.ijcir.org/volume 4-number2/article3.pdf

10.4 PAPERS IN CONFERENCE PROCEEDINGS

i. Magesa, M.M , **Sanga, C.A** (2020). Silent Adoption of Bring Your Own Devices in Tanzania Higher Learning Institutions - Adoption Policies. *IST-Africa 2020 Conference* 18 - 22 May 2020, URL: http://www.ist-africa.org/conference2020/ (pp.1-10)

ii. Nicodemus, N., Shao, Z., **Sanga, C**., Balz, T. (2020). A Human Sensor Web Framework for Monitoring Water Losses in Water Distribution Networks. *2nd International Conference for Artificial Intelligence and Big Data Analysis*, Macao, China. URL: https://www.researchgate.net/publication/339972999_A_Human_Sensor_Web_Framework_for_Monitoring_Water_Losses_in_Water_Distribution_Networks (pp.1-5)

iii. Mahenge, M. P. J., Li, C. Sanga, C. A. (*2019).* Collaborative Mobile Edge and Cloud Computing: Tasks Unloading for Improving Users' Quality of Experience in Resource-Intensive Mobile Applications, *IEEE 4th International Conference on Computer and Communication Systems (ICCCS)*, 2019, pp. 322-326, doi: 10.1109/CCOMS.2019.8821787

iv. Sumari, N. S., Shao, Z., Huang, M., **Sanga, C. A**., & Van Genderen, J. L. (2017). Urban Expansion: a Geo-Spatial Approach for Temporal Monitoring of Loss of Agricultural Land. *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 1349-1355.

v. Fue, K. G., Tumbo, S.D., & **Sanga, C.A.** (2015). Experts' Assignment Algorithm for Cloud-based Agro-advisory Service Information System (CASIS) using Weighted Sum Model: Piloting CASIS. *Beyond Connectivity: The Road to NREN Maturity, UbuntuNet-Connect* 2015,19-20 November 2015, Maputo, Mozambique. URL:http://www.ubuntunet.net/uc2015_cfpor https://www.ubuntunet.net/sites/default/files/Fue.pdf

vi. **Sanga, C**., Sumari, N., and Siza, D. (2013). On the Development of Climate Data Visualization tool for Interpretation of Empirical Results from Climate Model: Does it add Value to Different Stakeholders?, *Proceedings of the 6th UbuntuNet Alliance annual conference*, Pages 213-226

vii. Mlozi, M.R.S., **Sanga, C.,** Tumbo, S., Shetto, M.C. and Mwamkinga, G.H. (2012). The Role of Mobile Phones Towards Improving Coverage of Agricultural Extension Services: Preliminary Findings from Kilosa District, Tanzania, *1st EPINAV Annual Scientific Conference*, 17 – 18 December 2012 Hilux Morogoro

viii. **Sanga, C.**, Lwoga, E.T., and Venter, I.M., "Open Courseware as a Tool for Teaching and Learning in Africa," *tedc*, pp. 55-56, ISBN: 0-7695-2633-0, *FourthIEEE International Workshop on Technology for Education in Developing Countries* (TEDC'06), 2006. URL: http://doi.ieeecomputersociety.org/10.1109/TEDC.2006.23

ix. Chilimo, W. L. and **Sanga, C.** Towards Effective Knowledge Management Practices for Agricultural Information Specialists in Tanzania, *SCECSAL XVII*,Volume 1, pp 124-139. ISBN 9987 9086 1 6, *XVII Standing Conference of Eastern, Central & Southern Africa Library & Information Associations*, 2006. URL: http://www.tla.or.tz/scecsal2006/Volume1.pdf

x. **Sanga, C.** and Lwoga, E.T., Sustainability of donor funded ICT Projects in Higher Learning Education – case study of SUA, *International Conference on Inter-disciplinary research*, 11th – 12th August 2005,University of Zambia (UNZA) under VLIR-UNZA IUC Programme,p. 27, Lusaka, Zambia

xi. Sife, A.S., **Sanga, C.,** and Lwoga, E.T., New Technologies for teaching and learning: Challenges for Higher Learning Institutions in Developing Countries, *Tanzania Society of Agricultural Engineers*, TSAE, 21st - 23rd November, 2005, SUA, Morogoro,Tanzania.

xii. Lwoga E.T, **Sanga, C.,** Kazwala R.R. And Mganilwa Z.M. (2006). Using free and open source software for e-learning system in Tanzania, *Sustainability of ICT in Education Workshop, 5th International Congress on Higher Education*, Havana, Cuba, February 13th – 17th, 2006.

xiii. **Sanga, C**. and Venter, I. M. (2006). Using Soft Systems Methodology to Understand how to Exploit Learning Technologies in Developing Countries, *Education Students' Regional Research Conference organized by Five Higher Learning Institutions of Western Cape*, November 2006, PET-University of the Western Cape, South Africa

xiv. **Sanga, C**., Venter, I.M., and Agbinya, J.I. A Comparative Study Between Qualitative Weight Sum and Analytic Hierarchy Process Methodologies, *Annual Conference of the South African Institute of Computer Scientists and Information Technologists*, Fish River Sun, Sunshine Coast, South Africa, Sept 30 - 3 October, 2007.URL:www.nmmu.ac.za/saicsit/2007/programme.htm

10.5 EXTENSION MATERIALS AND POLICY BRIEF

i. Mwaseba, D.L., Nchimbi-Msolla, S., Hella, J., Amuri, N., **Sanga, C**., Selemani, I. S., Kyaruzi, A.A., Mapunda, K., Haug, R., & Westengen, O. (2018). Innovations in Technology, Institutional and Extension Approaches towards Sustainable Agriculture and enhanced Food and Nutrition Security in Africa - TANZANIA Country Report. URL: https://innovafricasite.files.wordpress.com/2018/04/countryreport_tanzania.pdf

ii. **Sanga, C**. (2018). e-Agriculture promising practice UshauriKilimo information system web and mobile phones for extension services in Tanzania. **FAO**, Italy. URL: http://www.fao.org/family-farming/detail/en/c/1137915/

iii. Mlozi, M. R. S., **Sanga, C**., Tumbo, S., Mussa, M., Kadeghe, F., &Haug, R. (2016). Delivery of agricultural extension service can be improved through mobile phones.*EPINAV Policy Brief No. 02/2016*. URL: http://hdl.handle.net/123456789/1008

iv. Tumbo, D. S., Mzirai, O., Mourice, S., Msongaleli, B., Wambura, F., Kadigi, I., **Sanga, C**., Kahimba, F., Ngongolo, H., Sangalugembe, C., Mutabazi, K. &Sumari, N. (2015). Impacts of Climate Change on Agriculture: What, When, Where and How? *AGMIP Policy Brief*. URL: https://ccafsicrisat.files.wordpress.com/2015/02/policy-brief_tanzania.pdf

11. OTHER RESEARCH WRITINGS

- Ph.D Thesis. (Unpublished). A Technique for the Evaluation of Free and Open Source e-Learning Systems (2010), University of the Western Cape, Cape Town, South Africa
- MSc. Dissertation . (Unpublished). Web Enabled Data warehouse – Banking System as case study (2004), Osmania University, Hyderabad, India.
- BSc. Final Year Project. (Unpublished). Analysis, Design and Implementation of Estate Management and Control System (2001), University of Dar es Salaam, Dar es Salaam, Tanzania.

12. COLLABORATIVE LINKAGES

Institution	Nature of Collaboration	Collaborators	Year
i. Makerere University, Faculty of Computing and Informatics Technology & Inter-University Council for East Africa (IUCEA)	Attended a Summit on revising ICT Master plan & ICT policy for Inter-University Council for East Africa (IUCEA)	Philip Ayoo; Jude Lubega	2012
ii. Technical University of Denmark &Sokoine University of Agriculture, Tanzania & Roskilde University, Denmark & University of Dar es Salaam, Tanzania & Kwame Nkrumah University of Science and Technology, Ghana	Collaborated on writing a manuscript titled 'Beyond extension services: University outreach in Ghana, Tanzania and Denmark'	Arne Wangel; Anna Temu; Søren Lund; Fritz Köster; C.V. Lugomela; N.W. Agbo; J.A. Bakang; B.B. Campion; W. Oduro; Kirsten Thomsen	2014 - 2016
iii. King Faisal University, Saudi Arabia and a Common Room Member at Wolfson College, the University of Oxford	Collaborated on writing a joint manuscript from 99 scholars in field of Educational Technology. The title of manuscript is 'Academic Domains as Political Battlegrounds: A Global Enquiry by 101 Academics in the Fields of Education and Technology'	Abdul Al Lily; Stoloff, D; Gogus, A; Erguvan, I; Awshar, M; Tondeur, J; Hammond, M; Venter, I, M; et al	2014 - 2016

13. HOBBIES

Reading novel, playing football, watching football, listening gospel music, playing computer games and traveling

14. REFEREES

Prof. L.J. M. Kusiluka
Vice Chancellor, Mzumbe University, Morogoro, Tanzania.
E-mail: ljmkusiluka@yahoo.com or ljmkusiluka@mzumbe.ac.tz

Prof. S. D. Tumbo
Deputy Permanent Secretary, Ministry of Agriculture, Tanzania
E-mail: siza.tumbo@sua.ac.tz or siza.tumbo@gmail.com

I, the undersigned, certify that to the best of my knowledge and belief, this information correctly describe me, my qualification, and my experience.