**CV FORMAT – KEFRI SCIENTISTS**

**RESEARCHER ID:**

**SCOPUS ID:**

**ORCHID:**  [0000-0002-7735-1023](http://orcid.org/0000-0002-7735-1023)

**Position:** Senior Research Scientist (GIS & Remote Sensing Analyst)

1. **PERSONAL INFORMATION** 
   1. **NAME:** Stephen Maina Kiama
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   5. **NATIONALITY:** Kenyan
   6. **GENDER:** Male
2. **QUALIFICATIONS** 
   1. **Academic Qualifications**

* PhD Student: Land & Water Management Program,

LARMAT, Faculty of Agriculture, University of Nairobi.

Thesis Working Title: “Evaluating terrestrial GHGs emissions using integrated modeling framework in Upper Ewaso Ngiro River Basin, Kenya”

* MSc. in Geo-information Science and Earth Observation (Specialization: Planning and Coordination in Natural Resources Management) (Distinction). University of Twente, The Netherlands

Thesis: Exploring Application of Remote Sensing in Estimating Crop Evapotranspiration: Comparison of S-SEBI Algorithm and adapted FAO 56 Model using Landsat TM 5 and MODIS, (Study area, Beja District, Altenjo Regional, Portugal)

* BSc. Natural Resource Management (First Class Honours), Egerton University, Kenya
  1. **Key Competencies**
* Processing and analysis of spatial and non-spatial data, being skilled in application of geospatial tools; land cover/land-use mapping using satellite-based data; spatial modelling of seasonality/temporal trend of crops, pasture, soil moisture and drought using satellite-based image products; assessment biomass-and carbon-stock at landscape level (by associating plot-level inventory and stratified land cover maps);
* Participatory NRM techniques including community mobilization, facilitating community sensitization meetings, community profiling using participatory rural appraisal (PRA) techniques (such as focus group discussion, key informants interviews, structural household-level interviews); participatory resource assessment (using community sketching, observational walking and GPS-based field mapping and farming system characterization); coordination of multiple stakeholders in NRM planning (using scenario building and analysis); development of participatory NRM plans including community action plans;
* Evaluating eligible/ineligible project areas based on criteria underlying standards of different voluntary carbon markets; development of project design document (PDD) suitable for a particular voluntary carbon market; development of reference/baseline scenario as a requirement for REDD+ applications.
* Project management and coordination, including development of project logical framework, monitoring and evaluation of indicators, annual and monthly work-plans, annual and monthly budgets; compiling of quarterly reports and progress reports; filing monthly and quarterly financial reports; negotiating and building working rapport with and rallying support from leaders, County and National officers in support of a target project.
  1. **Other Courses**
* July 30h – August 2, 2018: Data for Decision Making: The National Academies of Sciences, Engineering & Medicine (USA) under the USAID-PEER Africa Forum, Accra, Ghana
* October 10-12, 2017: PEER Financial Training on USAID Compliance and Financial Management: The National Academies of Sciences, Engineering & Medicine (USA) under the USAID-PEER Africa Forum, Kampala, Uganda
* November, 2014: Open source Geospatial data processing for REDD+ Applications: Regional Centre for Mapping of Resources for Development (RCMRD), Nairobi, Kenya, under the NASA-USAID SERVIR “Forest Carbon Assessment for REDD+ in the East Africa SERVIR Region”
* September 19-23, 2016: REDD+ Monitoring, and Measurement, Reporting and Verification Workshop, “ Training the Trainers”: Wageningen University
* July, 2014: Monitoring the Earth for Environmental Policy and Decision Making: European Space Agency, Frascati, Italy
* 2nd – 6th June, 2014: First Regional Workshop on Remote Sensing for Forest Monitoring, Technical Central Africa Initiative (GEO GFOI): SilvaCarbon & Global Forest Observations Initiative (GFOI), Douala, Cameroon
* 25th – 28th March, 2014: Technical Workshop on Integration Modelling and Land-use Change for MRV Systems: International Forest Monitoring, Department of Environment, Australian Government, Perth, Australia
* May-June, 2013: Remote Sensing of Forest Resources: Rakuno Gakuen University, Japan
* 12th October – 16th November, 2012: Executive Climate Change and Carbon Trading Course: Africa Carbon Exchange (ACX), P.O BOX, 68272-00200 Nairobi, Kenya; Tel: +254 (020) 8096287
* November, 2012: Geostatistical Methods for Environmental Monitoring and Epidemiology: University of Twente, Faculty of Geo-Information Science and Earth Observation (ITC)
* April/May, 2002: Participatory Rural Appraisal (PRA): Egerton University, Njoro, Kenya

1. **EMPLOYMENT HISTORY**

* June 2021 to date: Kenya Forestry Research Institute (KEFRI) as Senior Research Scientist (GIS & Remote Sensing Analyst).
* September 2011 to May 2021: Kenya Forestry Research Institute (KEFRI) as Research Scientist (GIS & Remote Sensing Analyst).
* October 2008 to 2nd June 2011: Water Services Trust Fund as the National Data Collection Coordinator/Training Expert
* 2nd June to September 2011: GIZ Water Programme, Nairobi, as Database Integration Expert
* April-October 2008: East Africa Wild Life Society, as Field/Operations Coordinator
* August 2005-September 2006: Kenya Forests Working Group, (sub-committee of East African Wild Life Society), as Project Officer
* May-August 2004: Tegemeo Institute of Agricultural Policy and Development, as Research Assistant

1. **ADMINSTRATIVE RESPONSIBILITY**

* September 2011-Present: Head of Forest/Landscape Remote Sensing & GIS Unit.
* July 2019- Present: Team Leader, Pilot Aerial Seeding Project, for piloting application of technologies to rehabilitate 10,000 Ha of degraded forests in Kenya. The exercise is scheduled to be rolled out during the short-rains of October/November 2019. The team is composed of experts drawn from KEFRI, Kenya Forest Service (KFS) and Department of Resource Surveys and Remote Sensing (DRSRS) and have already prepared a financial evaluation of aerial seeding technology against other approaches of forest establishment. The evaluation, as well as the Action Plan & Budget, has been approved by the Cabinet Secretary and Senior Officials in the Ministry of Environment of Forestry as well as to KEFRI’s Board of Directors, and allocated a budget line.
* July 2019-May 2021: Team Leader, Development of an App to support tree planting. The team is multi-disciplinary, drawing experts from various research themes of KEFRI. I have also successfully explained the App to Cabinet Secretary and Senior Officials in the Ministry of Environment of Forestry as well as to KEFRI’s Board of Directors.
* September 2017- Present: Work-package Leader, Value-chain survey and development in Laikipia County, Kenya. With funding from National Research Fund (NRF), we have conducted a rapid mapping of value chain development activities. Once the report is approved by stakeholders, we intend to conduct further value-chain survey specifically on commercial tree planting by smallholder farmers in Laikipia County.
* October 2015-September 2018: Principal Investigator of a USAID funded project “Evaluating terrestrial GHGs emissions using integrated modeling framework in Upper Ewaso Ngiro River Basin, Kenya”. It is a multi-institutional project, being implemented collaboratively by KEFRI, University of Nairobi and the Center for Integrated Training and Research in ASALs Development (CETRAD). school(Garissa)

1. **PUBLICATIONS** 
   1. **Journal papers**

* Jane W. Njuguna, Stephen M. Kiama, James O. Maua, Magrate M. Kaigongi, Michael M. Muganda, Stanley Nadir, , Charles Koech, John N. Kigomo and Joshua Cheboiwo. 2021. A Review of Global Experiences in Application of Aerial Seeding Technology in Restoring Degraded Forests: Preliminary Results from Piloting Aerial Seeding Technology in Maasai Mau Forest in Kenya. Submitted to Journal of Landscape and Ecological Engineering
* Joram Kagombe, Stephen M. Kiama, and James Kungu B (2020). Land cover mapping and change analysis in tropical humid-highlands: Case of Ndakaini water reservoir in Central Kenya. Journal of Natural Sciences Research www.iiste.org ISSN 2224-3186 (Paper) ISSN 2225-0921 (Online) Vol.10, No.8, 2020
* Daisy Mutuku , Hellen Kamiri , James Ndufa , Stephen Kiama , Mugo Mware (2019).Influence of Vegetation Cover and Topographic Position on Water Infiltration, Organic Matter Content and Aggregate Stability of Grassland Soils in Semi-Arid Kenya, Advances in Agricultural Science Volume 7 (2019), Issue 04, 01-17 Journal homepage: www.aaasjournal.org ISSN: 2588-3801
* Stephen Maina Kiama; Mapping spatial distribution and temporal dynamics of vegetation in a complex agro-pastoral landscape using time series of normalized difference vegetation index (NDVI), green index (GI) and land surface temperature (LST) from multi-temporal Landsat data, Presented during the IUFRO/FORNESSA Congress held on 25-29 June 2012 in Nairobi.
* Stephen M. Kiama, Satellite-based estimation of crop evapotranspiration: Comparison of S-SEBI Algorithm and Adapted FAO 56 model using Landsat TM (5) and MODIS, International Journal of Water Resources and Environmental Management (IJWREM): Volume 3, Number 2, July-December 2012, pp. 167-195
* Stephen Maina Kiama & K. Munezaro; Growth Performance of Cephalosphaera usambarensis Seedlings: Effect of Canopy Cover, other tree species and Herbaceous Plant. Presented during the International Conference for Society for Conservation Biology, June 2006, USA.
  1. **Books**
* Stephen Maina Kiama (2017). Designing a carbon and water observing system in wooded grasslands pf Mpala and Ilmotiok sub-catchments in Laikipia, Kenya. ISBN. 978-620-2-05923-7, Beau Bassin 71504, Mauritius
  1. **Book Chapter**
  2. **Technical Notes /Protocols/Guidelines**
* Meshack Muga, Oscar Mayunzu, Violet Oriwo, Stephen Kiama, Moses Lukibisi, Norman Wachira and Kegode (2014). ALOE RESOURCE ASSESSMENT AND MAPPING IN KWALE COUNTY. KEFRI Technical Report. KEFRI, Muguga, Kenya.
* John Ngugi, Stephen Kiama, Francis Gacathi, Samuel Kimani and Margaret Kuria (2013). A Preliminary Report on Baseline Vegetation Inventory and Land Degradation Assessment in Mbeere North District, Embu County in MAINSTREAMING SUSTAINABLE LAND MANAGEMENT IN AGROPASTORAL PRODUCTION SYSTEMS OF KENYA, KEFRI/SLM TECHNICAL REPORT FOR JULY-SEPTEMBER 2013 (edt. Director, KEFRI)
* Muga, M.O, Kiama, S, Oriwo, V. Mbiru, S. Gachathi, F.N. Choge, S. An overview of Hagar Gum, Tree Nurseries, Neem trees and Prosopis Resources in Garissa County.  A study carried out for MMMB Programme. KEFRI, Muguga, Kenya.
* Kiama, S.M., Njuguna, J.W., Maua, J.O., Kaigongi, M.M., Nadir, S., Ngugi J., Koech K.C. and Meso M. 2021. Aerial Seeding for Rehabilitation of Degraded Forestlands and Landscapes in Kenya: A Technical Report on Pilot Aerial Seeding in Maasai Mau Forest. KEFRI, Muguga, Kenya.
* Stephen M. Kiama, Jane W. Njuguna, James O. Maua, Magrate M. Kaigongi, Stanley Nadir, John N. Kigomo, Michael M. Muganda, Charles Koech, Joshua Cheboiwo. 2021. Protocol for Aerial Seeding Of Degraded Forests and Landscapes in Kenya. KEFRI, Muguga, Kenya.
  1. **Policy Briefs**

1. **RESEARCH** 
   1. **Completed**

* 2015-2018: Evaluating terrestrial GHGs emissions using integrated modeling framework in Upper Ewaso Ngiro River Basin, Kenya. Funded by USAID PEER Programme.
* 2013/2017: Developing System for Land-based Emissions Estimation for Kenya (SLEEK), implemented by the Ministry of Natural Resources, Water & Environment.
* 2013/2014: Biomass and green-house gas estimation and management of Prosopis spp. in Baringo County.
* 2013/2014: Modeling land degradation assessment in Kyuso, Suswa and Mbeere using spatial techniques as part of the project ‘Mainstreaming Sustainable Land Management in Kenya's Arid and Semi Agro-Pastoral Landscapes'.
* 2014: Woody vegetation resource assessment in Kitui County as part of the project ‘Developing National Guidelines for the Preparation of Participatory Woodlands Management Plan', sponsored by Miti Mingi Maisha Bora Programme.
* 2013: Assessment of Land cover change and carbon dynamics using INVEST model in Loita Forest
* 2013: Mapping of Aloe in Kwale County, Kenya, sponsored by Miti Mingi Maisha Bora Programme
* 2012/2013: Mapping of gum and resin in Garissa County, Kenya, sponsored by Miti Mingi Maisha Bora Programme.
* 2011/2012: Mapping of woodland vegetation in Makueni and Kitui Counties, sponsored by Miti Mingi Maisha Bora Programme.
* 2011-2013: Workshop facilitation in Participatory Forest Management Processes, during the development of Strategic Ecosystem Management Plan for Kakamega, Nandi and Cherangani forest ecosystems sponsored by UNDP/GEF 'Strenghthening Protected Areas Network of Eastern Arc Mountain Forests
* 2011/2012: Geostatistical analysis of soil parameters (N, P, K and hydraulic conductivity) in Taita-Taveta County
* 2011/2012: Spatial analyses of temporal land cove changes in relation to demographic characteristics of Ndakaini area, Kiambu County.
  1. **Ongoing research**
* Aerial Seeding Program for piloting application of technologies to rehabilitate 10,000 Ha of degraded forests in Kenya.
* Development of Species-to-Site Matching to support tree planting.
* Value-chain survey and development in Laikipia County, Kenya, funded by the National Research Fund (NRF).
  1. **Mentorship and supervision**
* Supervising University students who are gaining industrial skills in GIS & Remote Sensing Unit
* Mentored GIS & Remote Sensing Interns seconded to the GIS & Remote Sensing Unit

1. **INNOVATIONS AND PATENTS (Intellectual Property)**
2. **CONFERENCES/SEMINARS/WORKSHOPS** 
   1. Presentation of Papers at Academic and Professional Conferences

* Presented a paper on Aerial Seeding of degraded forestlands and landscapes in Kenya during a GIS & Earth Observation Symposium for the Water Sector in Kenya, organized by Kenya Water Institute, 24th -25th June, 2021
  1. Participation in Workshops/Conferences
* Participated in National Conference on the Role of Technology and Innovation in Forestry for Delivery of the Big 4, organized by NETFUND, 9th and 10th June, 2021
* Participated in KEFRI 5th scientific conference on contribution of forestry research to sustainable development which took place on 17th -19th April, 2018 at Muguga.
  1. Convening/Coordinating Conferences

1. **PROFESSIONAL ENGAGMENT**
   1. **Training**
   2. **Consultancies**
   3. **Collaboration with external organizations**
2. **EXTERNAL AND INTERNAL RESEARCH GRANTS**

* Sub-Grant Agreement entered between Kenya Forestry Research Institute, KEFRI (as Sub-Grantee) and National Academy of Sciences (“NAS”).  Sub-Grant was in support of the project titled “Using integrated modeling framework to evaluate the impact of human-induced land use/land cover change on carbon dynamics in Upper Ewaso Ngiro River Basin, Kenya” under the direction of Principal Investigator Mr. Stephen Kiama. The Sub-Grant Agreement was funded under Prime Agreement Number AID-OAA-A-11-00012 entered into by and between the NAS and the United States Agency for International Development (USAID).

1. **LOCAL, REGIONAL & INTERNATIONAL APPOINTMENTS** 
   1. Local
   2. Regional
   3. **International**

* 2018-2022: College Member, UKRI International Development Peer Review College

1. **AWARDS AND RECOGNITION**
2. **CONTRIBUTION TO KEFRIs ADVANCEMENT**

* Pioneering of application of Aerial Seeding in restoration of degraded forests in Kenya.
* Development of Species-to-Site Matching to support tree planting.

1. **MEMBERSHIP TO PROFESSIONAL BODIES**

* UKRI International Development Peer Review College
* International Society for Agricultural Meteorology (ISAM)
* Kenya Forestry Society
* Kenya Forests Working Group
* Society for Conservation Biology
* East African Natural History Society
* Associate EIA and Audit Expert with NEMA

1. **REFEREES**

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Principal Scientist & Team Leader, Value Chains, Finance and Investment (VFI)

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