

**Department of Land Resource Management & Agricultural Technology
(LARMAT)**

**University of Nairobi
College of Agriculture and Veterinary Sciences**



Annual Report 2012/2013



EXECUTIVE SUMMARY

The Department of Land Resource Management and Agricultural Technology (LARMAT) through training, research and community service, aims at enhancing sustainable natural resource management and development of technologies suitable for sustainable livelihoods, and informing policy. The department offers both undergraduate and postgraduate programmes in soil, water, range, agroforestry and environmental management. The department also offers consultancy and advisory services in soil survey, soil fertility and water management, land use planning, and bio-fertilizer production among others. The Department hosts the Center for Sustainable Dryland Ecosystems and Societies (CSDS) and the regional Micro-Biology Resource Centre (MIRCEN) that offers training in biological nitrogen fixation and inoculants production. LARMAT has the mandate to manage Kibwezi and Machang'a field stations, which have great potential for irrigated agriculture, livestock production and bee keeping. In addition, the department is in charge of Ngong Forest Field Station, where a tree seedlings nursery is maintained.

1. INTRODUCTION

One of the most critical issues facing the world today is how to manage and use natural resources for sustainable livelihoods and development. For this to be possible, adequate understanding of the resources by the direct user, the technician and the manager is imperative. This is linked to the increasing human population and the accompanying need for resources to sustain it. Pressure has been increasing on natural resources, leading to, *inter alia*, forest recession, soil erosion, degradation of water catchments and desertification. All these have resulted in reduction of the standards of living of the communities.



The department of LARMAT, through training, research and community service, aims at enhancing sustainable natural resource management and development of technologies suitable for sustainable livelihoods, and informing policy. To achieve this noble goal, the department is guided by the following vision, mission and core values:

Vision: To be a school of excellence in sustainable land resource management.

Mission: To provide leadership in sustainable management of land resources and technologies through quality training, research and outreach.

Core values:

- Professionalism and ethics
- Transformative education, research and outreach
- Teamwork and partnership
- Environmental sustainability and food security
- Equity and inclusiveness

Physical Facilities

The department is fairly well endowed with physical facilities and infrastructure:

- Lecture theatres (small & large)
- Teaching Laboratories (undergraduate & postgraduate)
- Research Laboratories with modern equipment
- Field stations in Nairobi, Kibwezi and Machanga
- Internet connectivity and access to Library Resources
- Green houses
- Microbiological Resources Center (MIRCEN)
- Centre for Sustainable Dryland Ecosystems and Societies (CSDES)

2. ACADEMIC PROGRAMMES

In collaboration with other departments in the Faculty of Agriculture, and also Veterinary Medicine, LARMAT offers the following academic degree programmes:

Undergraduate Programmes

- BSc. Management of Agro-ecosystems & Environment
- BSc. Range Management
- BSc. Agriculture (Soil Science Major)

Postgraduate Programmes

- MSc. Range Management
- MSc. Soil Science
- MSc. Land and Water Management
- MSc. Sustainable Soil Resource Management
- MSc. Agroecosystems and Environment
- MSc. Agroforestry
- PhD in all the above MSc programmes
- PhD. Dryland Resource Management (by course work, research & thesis)



BSc. Management of Agro-ecosystems & Environment and BSc. Range Management First Year students scaling the Chaimo volcanic hill in Tsavo West National Park during their induction field trip in June 2103. The field excursion that takes 3-4 days exposes students to various parts of the country. The experiential learning is to ensure that students appreciate the different land use potentials and environmental challenges.

Table 1: Students admitted into various academic degree programmes in 2012/2013.

	Programme	No. Admitted
1.	BSc. Range Management	40
2	BSc. Mgt. of Agro-ecosystems & Environment	35
3	BSc. Agriculture (Soil Science Major)	10
4	MSc. Sustainable Soil Resource Management	6
5	MSc. Range Management	4
6	MSc. Soil Science	1
7	MSc. Land & Water Management	4
8	MSc. Agroecosystems and Environment	1
9	MSc. Agroforestry	1
10	PhD. Dryland Resource Management	8
11	PhD. Soil Science	1
12	PhD. Range Management	1
13	PhD. Sustainable Soil Resource Management	1
	Total	113

Table 2. Number of students who graduated from each degree programme in 2012/2013.

	Programme	No. Graduated
1.	BSc. Range Management	9
2	BSc. Mgt. of Agro-ecosystems & Environment	29
3	BSc. Agriculture (Soil Science Major)	4
4	MSc. Range Management	2
5	MSc. Soil Science	1
6	MSc. Sustainable Soil Resource Management	9
7	MSc. Land & Water Management	2
8	PhD. Dryland Resource Management	2
9	PhD. Mgt. of Agro-ecosystems & Environment	1
	PhD. Range Management	1
	Total	63

Table 3. External examiners in the Academic Year 2012/2013.

The external examiners that served the department in the academic year 2012/2013 are listed in the table below:

Name	Area of specialization	Contact
Prof. Isaac Kirea Kigatiira	Dryland, Natural Resources and Environment Management	Dept. of Dryland Natural Resource Management, Africa Nazarene University P.O. BOX 56861 NAIROBI-KENYA
Prof. Nancy Wangari Mungai	Soil Biology and Chemistry, and Soil Fertility Management	Dept. of Crops, Horticulture and Soils, Egerton University P.O. BOX 536 NJORO-KENYA
Prof. Peter Alfred Kamau	Soil Survey and Land Evaluation, Soil and Water Management	Dept. of Agric. & Natural Resources Kenya Methodist University P.O. BOX 45240-00100 NAIROBI-KENYA

Short Courses

Other than the degree programmes listed above, the department offers short course in the following areas:

- Biological Nitrogen Fixation and Bio-fertilizer Production and Use,
- Urban and Peri-Urban Agriculture
- Waste Management and Re-Use, including Compost Making
- Organic Farming
- Irrigation and Agricultural Water Management
- Application of GIS and Remote Sensing in Land Use Planning

Employment Opportunities

LARMAT graduates find job placement in various organizations. Key of these include government ministries and departments, public and private tertiary training institutions, national research organizations (KARI, KEFRI), international research organizations (WAC, ILRI, ICRISAT, CIAT), Non-Governmental Organizations, and consultancy firms.

3. RESEARCH ACTIVITIES

Research Areas

Key areas of research that LARMAT staff members and postgraduate students are involved in include:

- Sustainable dryland resource management
- Soil fertility management (soil quality and health)
- Soil and water conservation including reclamation/rehabilitation of degraded soils
- Agricultural water resources management
- Pastoral livestock production systems, including human-wildlife interactions
- Dryland livelihood securities and socio-economy
- Urban agriculture and waste management
- Agroecological intensification of land use
- Climate change, adaptation & mitigation



Participants of AGRA-funded Capacity Building in Sustainable Soil Resource Management regional MSc training stakeholders workshop held in Nairobi in 2012.

Table 4. Key research activities in the department during the 2012/2013.

S.No.	Principle Investigator	Research Title
1.	Dr. R. N. Onwonga	Access agriculture (2014) - Videos for farmers' Project - Video-mediated learning in Agriculture (6 months)
2		Capacity Building in Sustainable Soil Resource Management, AGRA funded regional MSc training in Department of LARMAT (2011-2013)
3	Prof. G. Kironchi	Strengthening Africa's Strategic Agricultural Capacity for Impact on Development (SASACID) Project - African Network for Agriculture, Agroforestry & Natural Resources Education (ANAFE) (2012-2014)
5	Dr. J. S. Mbau	An analysis of human-wildlife conflicts in the Tsavo West Amboseli Agroecosystem using integrated geospatial approaches. A case study of Taveta District , Southern Kenya



Prof. C.K.K. Gachene (second from right) visiting a conservation tillage field experiment site in Makueni County with KARI scientists led by Dr. A. Esilaba (left). Over the years the Department of LARMAT has put emphasis in collaboration with other institutions to carry out research and training.

Research outputs

Key research outputs and products in the department are:

- Legume inoculants production (Biofix™)
- Rangeland and wildlife management policies
- Land evaluation for agricultural development
- Capacity building in soils, water, drylands management and environmental protection

4. CONSULTANCY AND ADVISORY SERVICES

The following services are available in the department to our clients:

- Soil survey and mapping
- Environmental Impact Assessment
- Soil testing, plant analysis and interpretation for farmers
- Microhistological analysis
- Land evaluation and land use planning
- Irrigation, drainage and water quality assessment
- Herbarium management
- Organic waste management
- Biofertilizer and biocontrol agents

5. PUBLICATIONS

MSc. Theses

S.No	Programme	Title	Author
1	MSc. Soil Science	<i>Effectiveness of Rhizobia Isolates from Kenyan Soils and Commercial Inoculants in Nodulation of Soybeans</i>	Waswa N. Maureen
2	MSc. Land & Water Management	Effect of Compliance with Food Safety Standards for Production of French Beans on Soil Fertility in Smallholder Farms in Kirinyaga County	Mnyambo G. Clarice
3	MSc. Land & Water Management	Effects of Supplemental Irrigation on Growth and Yield of Onions (<i>Allium cepa</i>) and Tomatoes (<i>Solanum lycopersicum</i>) in Semi-arid Eastern Kenya	Origa O. Linus
4	MSc. Range Management	<i>A Comparative Study of the Productivity of Brachiara Hybrid CV. Mulato 11 and Native Pasture Species in Semi-Arid Rangelands of Kenya</i>	Machogu Clara
5	MSc. Range Management	<i>Pastoral Community Learning on Natural Resource Conservation and Governance: A case of Il Ngwesi Conservancy in Laikipia County Kenya</i>	Komu Henry Mwaka
6	MSc. Sustainable Soil Resource Management	<i>Assessment of Quality Control of Inoculants on Bean and Soybean in Eastern and Central Africa</i>	Mwanga Balume Kayani
7	MSc. Sustainable Soil Resource Management	<i>Soil Fertility Gradients: Effect of Long Term Fertilizer Application on Soil Properties, Striga Density and Maize Yield</i>	Sibusisiwe Caroline Kamanaga
8	MSc. Sustainable Soil Resource Management	<i>Efficacy of Farmers' Soil Fertility Management Practices in the Control of Striga Hermonthica: A Case Study of Smallholder Farmers of Western Kenya</i>	Godfrey Nakitare Nambafu

9	MSc. Sustainable Soil Resource Management	<i>Use of Organic and Inorganic Fertilizers in Maize-Legume Intercrop and Adaptation to Climate Change in Mozambique</i>	Chichogue Oscar Joab
10	MSc. Sustainable Soil Resource Management	<i>Farmers Perceptions, Use and Profitability of Biofix on Soybean (Glycine Mx) Production in Western Kenya</i>	Mutuma Patrick Samual
11	MSc. Sustainable Soil Resource Management	<i>Effect of Varying Soybean Planting Density on Maize (Zea Mays) and Soybean (Glycine Max) Yields in a Maize –Soybean Intercrop System in Western Kenya</i>	Simbine Margarida Graciete
12	MSc. Sustainable Soil Resource Management	<i>Assessing the Interactions Between Tephrosia Biomass and Inorganic Fertilizer on Soil Chemical Properties and Maize Yield in Malawi</i>	Munthali Maggie Golie”
13	MSc. Sustainable Soil Resource Management	<i>Assessment of Sufficiency Levels of Nitrogen and Phosphorus for Rice Growth and Yield in Paddy Fields of Cyunuzi Lowland, Eastern Rwanda</i>	Uwanyirigira Jeanine
14	MSc. Sustainable Soil Resource Management	<i>Effect of Timing and Methods of Mineral Fertilizer Application on Irish Potato (Solanum tuberosum) Performance in Musanze and Nyaruguru Districts, Rwanda</i>	Turamyenyirijuru Adrien

PhD. Theses

	Program	Title	Author
1	PhD (DRM)	<i>An Analysis of Human-Wildlife Conflicts in the Tsavo West – Amboseli Agro-Ecosystem Using Integrated Geospatial Approaches: The Case Study of Taveta District</i>	Mbau Judith Syombua
2	PhD (DRM)	<i>Climate Variability and Adaptation in Agro-Pastoral Production Systems of Southern Zambia</i>	Chibinga Chifungwe Oswin
3	PhD Range Management	<i>The Influence of Climate Variability and Change on Land-use and Livelihoods in the Southern Rangelands of Kenya</i>	Amwata Dorothy Akinyi
4	PhD Management of Agroecosystems & Environment	<i>Evaluating Briquette Technologies and their Implications on Greenhouse Gases and Livelihoods in Kenya</i>	Njenga Mary Mbura

Journal Papers

1. Mulebeke, R., **G. Kironchi**, M. M. Tenywa. 2013. Soil moisture dynamics under different tillage practices in cassava-sorghum based cropping systems in eastern Uganda. *Ecohydrology and Hydrobiology* 13: 22-30.

2. Amondo, E., **G. Kironchi** and S. Wangia. 2013. Willingness to Pay for Improved Water Supply due to Spring Protection in Emuhaya District, Kenya. *International Journal of Education and Research*, 7: 1-14.
3. Kirina T., **R. Onwonga** and **G. Kironchi**. 2013. Modeling Potential Impact of Climate Change in Semiarid Areas: A Simulation of Sorghum and Cowpea Performance using APSIM Model. Lambert Academic Publishing. ISBN: 978-3-31533-6.
4. Origa, O.L., **C.K.K. Gachene**, **G. Kironchi** and **R.N. Onwonga**. 2012. Effect of Different Supplemental Watering Regimes on Water Use Efficiency and Economic Returns of Onion and Tomato in Kibwezi District, Eastern Kenya. *East Africa Agricultural and Forestry Journal*, 78(2): 89-97.
5. **Karuku, G.N.**, **C.K.K. Gachene**, **N. Karanja**, W. Cornelis, H. Verplancke and **G. Kironchi**. 2012. Soil Hydraulic Properties of a Nitisol in Kabete, Kenya. *Tropical and Subtropical Agroecosystems* 15: 595-609.
6. Zziwa, E., **G. Kironchi**, **C.K. Gachene**, S. Mugerwa and, D. Mpairwe. 2012. The dynamics of land use and land cover change in Nakasongola District. *Journal of Biodiversity and Environmental Sciences*. ISSN: 2220-6663 (Print) 2222-3045 (Online) 2 (5): 61-73. <http://www.innspub.net>
7. Nyamwamu, B, J.J. Okello and **G. Kironchi**. 2012. Drivers of the transition from pastoralism to vegetable farming in Africa's arid and semi arid areas and implications for soil fertility management: The case of Kenyan pastoralists. *African Journal of Agricultural Research* Vol. 7(15), pp. 2273-2282, 19 April, 2012. Online at <http://www.academicjournals.org/AJAR>. DOI: 10.5897/AJAR11.1176. ISSN 1991-637X
8. Kirina T.K., **R.N. Onwonga** C. Onyango **J.P. Mbuvi** and **G. Kironchi**. 2012. Climate change and variability: Farmers' perception, experience and adaptation strategies in Makueni County, Kenya, *Asian Journal of Agriculture and Rural Development*, Vol. 2, No. 3, pp. 411-421.
9. Miriti, J.M, **G. Kironchi**, A.O. Esilaba, L.K. Heng, C.K.K. Gachene, D.M. Mwangi, 2012. Yield and water use efficiencies of maize and cowpea as affected by tillage and cropping systems in semi-arid Eastern Kenya. *Agricultural Water Management* 115(2012) 148-155.
10. Opiyo, F.E.O., **Wasonga, V.O.**, Schilling, J. and **Mureithi, S.M.** 2012. Resource-based Conflicts in Drought-prone North-western Kenya: The Drivers and Mitigation Mechanisms. *Wudpecker Journal of Agricultural Research* 1(11): 442 – 453.
11. Verdoodt, A., Moussandek, R., **Mureithi, S.M.**, Vermang, J. and Ye, L. 2013. Opportunities and challenges in assessing and combating land degradation. In: De Boever, M., Khlosi, M., Delbecque, N., De Pue, J., Ryken, N., Verdoodt, A., Cornelis, W., Gabriels, D. (Eds.). (2013). *Desertification and land degradation: processes and mitigation*. Ghent, Belgium: Ghent University. UNESCO Chair of Eremology, pp. 35-42.
12. **Mureithi S.M.**, Verdoodt A, **Njoka J.T**, **Gachene C.K.K**, Warinwa F and Van Ranst E. 2013. Impact of land zoning under community natural resource management programme a Kenyan semi-arid rangeland. In Proceedings: 1st Student-Led Conference organised by the Centre for Sustainable Drylands and Societies (CSDS) of the University of Nairobi. 29 - 30th May, 2013. Nairobi, KENYA.
13. **Mureithi S.M.**, Verdoodt A, **Njoka J.T**, **Gachene C.K.K**, Warinwa F and Van Ranst E. 2013. Impact of community conservation management on a Kenyan semi-arid savannah. In Proceedings: Desertland. Conference on Desertification and Land Degradation. 17 & 18 June, 2013, Gent, BELGIUM. <http://www.desertland.eu/>
14. **Mureithi, S.M.**, Verdoodt, A. **Njoka, J.T.**, **Gachene, C.K.K.**, Meyerhoff, E. and Van Ranst, E. 2012. Direct benefits derived from a rehabilitated semi-arid rangeland in Kenya. In Proceedings Vol. 1: Deforestation, Overgrazing and Desertification; Land Degradation, Remediation and Reclamation; Wetland Soils and Climate Change. Ed. S Kapur, MT Esetlili, & F Özen. 2012. 143-148. 8th International Soil Science Congress on "Land Degradation and challenges in Soil Management". May 15-17, 2012. Çeşme-Izmir, TURKEY. www.soilcongress.ege.edu.tr
15. Verdoodt, A., Moussandek, R., **Mureithi, S.M.**, Vermang, J. and Ye, L. 2012. Opportunities and challenges in assessing and combating land degradation. Paper presented in the Fourth Conference on Desertification and Land Degradation. 18-19th June, 2012. Gent, BELGIUM. <http://www.desertland.eu/>
16. **Richard N. Onwonga**, Joyce J. Lelei and Joseph K. Macharia (2013). Comparative Effects of Soil Amendments on Phosphorus Use and Agronomic Efficiencies of Two Maize Hybrids in

- Acidic Soils of Molo County, Kenya. *American Journal of Experimental Agriculture* 3(4): 939-958, 2013.
17. Ibrahim Ahmed, **Richard N. Onwonga**, D. M. Mburu, Yazan A. Elhadi (2013). Evaluation of types and factors influencing adoption of rainwater harvesting techniques in Yatta District, Kenya. *International Journal of Education and Research* Vol. 1 No. 6 June 2013.
 18. Egeru Anthony, **Wasonga Oliver**, Kyagulanyi Joseph, Majaliwa Mwanjalolo, G.J. **MacOpiyo Laban**, Mburu John, 2014. Spatio-temporal dynamics of forage and land cover changes in Karamoja sub-region, Uganda. *Pastoralism: Research, Policy and Practice*.
 19. **Mbau J.S.** (2013). Land use and land cover changes and their implications for human-wildlife conflicts in the Semi-Arid rangelands of southern Kenya. *Journal of Geography and Regional Planning*, Vol. 6(5): 193-199.
 20. **Mbau J.S., Nyangito M.M. and Gachene C.K.K.** (2013). Land use and land cover change analysis. Linking local communities to land use and land cover changes using Participatory Geographic Information Systems. ISBN No. 978-3-659-36222-4. LAP LAMBERT Academic Publishing, Germany.
 21. **Mbau J, Nyangito, M.M. and Gachene C.K.K.** 2013. Land use and land cover changes analysis: Linking local communities to land use and land cover changes using participatory geographic information systems (PGIS). ISBN No. 978-3-659-36222-4. Lap Lambert Academic Publishers.
 22. **Nyangito, M.M.**, Nyariki, D.M., Hjort, A., Kassim, O.F. and Musimba, N.K.R. (2012). Analysis of secondary land rights for adaptation to climate driven agropastoral systems of south eastern Kenya. *E. Afr. agric. For. J.* (2012) 78(1):113-118.
 23. Ndathi, J.N, **Nyangito, M.M.**, Musimba, N.K.R. and Mitaru, B.N. (2012). Farmers' preference and nutritive value of selected indigenous plant feed materials for cattle in drylands of southeastern Kenya. *Livestock Res for Rural Dev.* 24(2).
 24. Chibinga, O.C., Musimba, N.K.R., **Nyangito, M.M.**, Simbaya, J and Daura, M.T. (2012). Climate variability: enhancing adaptive utilization of browse trees for improved livestock production among agro-pastoralists communities in southern Zambia. *Afr. J. of Environ. Sci. and Technol.* Vol. 6(7), pp. 267-274.

6. PARTICIPATION IN CONFERENCES IN 2012/2013

The following staff members participated in various national, regional or international workshops and conferences:

Conferences

Prof. G. Kironchi

- The 13th KARI Biennial Scientific Conference and Exhibition of Innovations, KARI Headquarters, Nairobi, October 22-26, 2012. Presented a paper jointly with Miriti, J.M, C.C.K. Gachene and A.O. Esilaba titled: Effects of Water Conservation Tillage on Water Use Efficiency in Maize-Cowpea Cropping Systems in Semi-Arid Eastern Kenya.

Dr. L. MacOpiyo

- International Conference on Climate Change Impacts and Adaptation for Food and Environmental Security, 21-22 Nov. 2012. Held at Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), UPLB Campus, College, Los Baños, Laguna, Philippines. Presentation: "A System for Monitoring the Effects of Climate on the Flux and Availability of Water Resources in the Drylands of Eastern Africa".

Dr G.N. Karuku

- The 27th Soil Science Society of East Africa and the 6th Africa Soil Science Society Conference at Hotel Cathy, Nakuru County, Kenya October, 21-25, 2013. Theme: Transforming Rural

Livelihoods in Africa: How can land and water management contribute to enhanced food security and address climate change adaptation and mitigation?

Prof. S. Keya

- KARI Annual Research Conference held in Nairobi January 2013 and presented a paper on Essential Elements towards the preparation for an External Programme and Management Review of research.
- International Symposium and Exhibition on Agricultural development in the East African Community Partner States - 50 Years of Independence. Kampala Uganda 4 - 8 November 2013. Presented a 30 page Commissioned Paper entitled: "Progress in On-Farm Production and Productivity in the East African Community: 50 Years after Independence"

Dr. Judith Mbau

- Participated in the Tropentag International Conference held September 2012. – Germany.
- Participated in the Student-led conference held at UON – Kabete campus June 2013. Presented a paper on: Linking local communities to land use and land cover changes and their implications for human-wildlife conflicts using PGIS.

Dr. Stephen Mureithi

- National Land Conference on Sustainable Land Management in Dry lands of Kenya: Towards increasing Land Productivity. Organised by Mainstreaming Sustainable Land Management in Agro-Pastoral Production Systems of Kenya Project. 25th – 29th Nov. 2013. Naivasha, KENYA. www.slmkenya.org
- 6th Africa Soil Science Society (ASSS) and the 27th Soil Science Society of East Africa (SSSEA) Conference. Soil is Wealth, Protect it. 21-25th October, 2013. Nakuru, KENYA.
- Desertland: The Fourth Conference on Desertification and Land Degradation. 17-18th June, 2012. Gent, BELGIUM. <http://www.desertland.eu/>
- 1st Student-Led Conference organised by the Centre for Sustainable Drylands and Societies (CSDS), University of Nairobi. 29- 30th May, 2013, Nairobi.

Dr. Richard Onwonga

- The 27th Soil Science Society of East Africa and 6th Africa Soil Science Society Conference October 21-25, 2013 Hotel Cathay, Nakuru, Kenya.
- 8th International Conference and Expo 2014 on 26th-28th March 2014

Workshops

Prof. G. Kironchi

- DRIVLIC–Kenya Project Final Results’ Dissemination Workshop. Effect of Compliance with Food Safety Standards for production of French beans on Soil Quality in Smallholder Farms in Kirinyaga County. KARI headquarters, Nairobi, January 21-23, 2013.
- KAPAP 2nd Research Call Workshop. Research Options for Climate Change Adaptation and Mitigation in Agriculture: The Case of Kenya. Invited Key note presentation. Organized by the KAPAP Secretariat, KWSTI –Naivasha, August 14-15, 2012, Naivasha, Kenya

Dr. Stephen Mureithi

- Day of the Young Soil Scientist: 20th Feb. 2013. Organised by The Belgium Society of Soil Science. Brussels, BELGIUM.

- 8th International Soil Science Congress on "Land Degradation and Challenges in Sustainable Soil Management" 15-17th May 2012, Çeşme-İzmir-TURKEY.
- Triple L - Land, Livestock and Livelihood Dynamics in Dryland Systems. 18-20th Nov. 2013. Kitale, KENYA.

Dr. Judith Mbau

- Presented in a workshop held in Taveta District Kenya 2013: Integrating local communities into the management of human-wildlife conflicts. The case of Taveta District, Southern Kenya. Presentations papers: (1) Local Community participation in Human-wildlife conflict management; (2) The potential of ecotourism in Human-Wildlife conflict management.
- Summer School held September 24-28, 2012 in Witzenhausen, Germany; presented paper entitled "Modeling approaches to support grassland management" University of Kassel, Germany.

Scientific Visits and Trainings

Prof. G. Kironchi

- Improved Methods for Agribusiness Learning, organized by Market Matters Inc., Cape Town, South Africa, May 5-10, 2013.
- Results-Based Management (RBM), organized by ANAFE, University of Abdou Moumouni of Niamey, Niger, November 29-December 1, 2012.
- Development of Instructional Content for Open and Distance Learning, organized by the Centre for Open and Distance Learning (CODL), University of Nairobi at KWSTI Naivasha, August 5-11, 2012.

Dr. L. MacOpiyo

- Instructed at the GrassNet Summerschool held between September 24-28, 2012 in Witzenhausen, Germany entitled "Modeling approaches to support grassland management" Gave the following seminars:
 - ✓ Modeling fodder supply by use of spatial data and satellite-based weather monitoring system data.
 - ✓ Modeling the effects of changes in decision making using multi agent models
- Instructed at the "Sustainable Agricultural and Rural Development for Food Security" summer school at SEARCA, Los Baños, Laguna, Philippines between 11th -15th November 2013.

Presented a weeklong seminar on *Population, Food, and Governance Issues*

Dr. G. N. Karuku

- Introduction to the use of Nuclear and isotopic techniques in soil, water and nutrient management; at the International Atomic Energy Agency in Vienne International Center, Vienna-Austria from May 12-18, 2013.

7. KEY VISITORS TO THE DEPARTMENT

- Brett L. Bruyere - Colorado State University
- Prem Warrior – Bil & Melinda Gates Foundation
- John Honieson – Perth University Australia
- Rita Boery – IDRC, Ottawa Canada
- Ced Hesse – IIED, Edinburgh, UK
- Dr. Moses Pulei – World Vision, East Africa Region
- Jie Zhang – University of Kassel, Germany

8. OUTREACH AND COMMUNITY SERVICE

Staff members and students were involved mainly in the following environmental and community services outreaches:

- Tree planting
- Secondary School students mentorship



Students out in Kibwezi Dryland Field Station carrying tree seedlings to a planting site. Students from the Department of LARMAT are always in the forefront when it comes to environments matters such as tree planting.

9. LINKAGES ESTABLISHED OR CONTINUED

The department established or continued to nature the following partnerships and collaborations:

National: KEFRI, KARI, KWS, GOK-Agriculture Sector Ministries, NGO'S, Farming Communities, and Public & Private Sectors

International: CGIAR Center (ILRI, ICRAF, ICRISAT, CIAT, IITA, CIP)

Regional: RUFORUM, IGAD, ASARECA, ANAFE

Universities : Local, Regional and International

Development Partners : USAID, IDRC, SIDA, NCST, Bill & Mellinda Gates Rockfeller Foundation, Ford Foundation, AGRA, World Bank and DFID

In the Academic Year 2012/2013 the following links were established:

Link between the Department of LARMAT and MEA Ltd to market Biofix
African Network for Agriculture, Agroforestry & Natural Resources Education (ANAFE)
AGRA funded regional MSc training in Department of LARMAT (2011-2013): Capacity Building in Sustainable Soil Resource Management
RUFORUM funded regional PhD training for 3 PhD students in Department of LARMAT: Capacity Building in Dryland Resources Management.

10. MEMBERSHIP IN COMMITTEES

1. FACULTY COMMITTEES

Faculty Postgraduate Studies Committee

- Prof. Mbuvi
- Dr. Wasonga

Timetabling Committee

- Mr. A. Mwala
- Dr. Ayuke

Farm/Range/Industrial Attachment Committee

- Mr. J.M. Ndutu
- Dr Wasonga

Show and Exhibition Committee

- Dr V. O. Wasonga
- Dr. G. Karuku

Environmental Committee

- Dr. G. Kironchi

Field Station Management Committee

- Dr G. Karuku

Curriculum Review Committee

- Dr. G. Kironchi
- Dr. M. M. Nyangito

Research Publications and Seminar Committee

- Prof. J. A. Keter
- Prof. N. Karanja
- Dr. F. Ayuke

Mentoring Committee

- **Prof. J.T Njoka**
- **Prof. J.P. Mbuvi**

Examination Committee

- Dr. R. N. Onwonga
- Mr. A. Mwala

AGRA Committee

- Dr. R. N. Onwonga

Faculty of Agriculture Business Unit Committee

- Prof. J. T. Njoka
- Dr. M. M. Nyangito
- Prof. R. Kinuthia Ngugi

Welfare Committee

- Mr. J.M. Ndotu
- Dr. G. N. Karuku

MSc ARM Programme Committee

- Dr. G. Kironchi

ICT & E-Learning Committee

- Dr. G. Kironchi
- Dr. S. M. Mureithi

Rural Innovation

- Prof. G. Kironchi

Faculty ICT Champion

- Dr. G. Kironchi

Module II and ODEL

- Prof. G. Kironchi
- Dr Kironchi

Ruforum Committee

- Prof. J. Njoka
- Dr. MacOpiyo

11. LIST OF MEMBERS OF STAFF

The department of LARMAT has a highly qualified academic and technical staff portfolio comprising 80% PhD holders. These consist of 2 Professors, 7 Associate Professors, 5 Senior Lecturers and 4 Lecturers and Technologist, 1 Principle Technologist, 4 Senior Technologists and 5 Technologists)

Chairman

- Kironchi, G., BSc., MSc, PhD. (Nairobi)

Professors

- Karanja, N.K., BSc, MSc, (Nairobi), PhD (Reading)
- Keya, S.O., BSc, MSc,(Makerere) PhD, (Cornell)

Associate Professors

- Kironchi, G., BSc., MSc, PhD. (Nairobi)
- Ngugi, R.K., BSc. Agric., (Nairobi), MSc, (Texas A&M), PhD, (Wyoming, USA)
- Gachene, C.K.K., BSc, MSc, (Nairobi), PhD, (SUAS, Sweden)
- Nyariki, D.M., BSc. Range Mgt, MSc, (Nairobi), PhD,(Reading)-**On Leave**
- Keter, J.K.A, BSc, MSc, (Nairobi), PhD, (Florida)
- Mbuvi, J.P., MSc. Agric., PhD, (Go-do-Ilo., Hungary)
- Njoka, J.T., BSc. Agric, (Nairobi) MSc, PhD, (California)

Senior Lecturers

- Farah, K.O., BSc (Agric), MSc, (Nairobi), PhD. (Utah) – **On leave**
- Ekaya, W.N., BSc. Range Mgt, MSc, PhD. (Nairobi) – **On leave**
- Nyangito, M.M., BSc, MSc, PhD, (Nairobi)

- Onwonga, R.N., BSc, MSc, (Egerton), PhD, (Vienna)
- Ayuke. F.O, BSc, Mphil, (Moi) PhD. (Wageningen)

Lecturers

- Karuku, G.N., BSc, MSc, PhD. (Nairobi)
- Mwala, A.K., BSc, MSc, (Nairobi)
- Ndutu, J.M., BSc, MSc, (Nairobi)
- Wasonga, O.V., BSc, MSc, PhD. (Nairobi)
- Kathumo, V.M., BSc, MSc, PhD. (Nairobi)
- MacOpiyo, L.O., BSc, MSc, (Nairobi), PhD (Texas A&M)

Tutorial Fellows

- Mureithi, S.M., BSc, (Nairobi) MSc. PhD. (Ghent)
- Mbau, J. S. BSc, MSc, PhD. (Nairobi)
- Kibet, S. BSc, (Nairobi) MSc, (JKUAT) - *PhD Candidate*
- Oscar K. K. BSc, MSc. (Nairobi) - *PhD Candidate*

Principal Technologist

- Kahi, H.C., BSc, MSc (Nairobi)

Chief Technologist

- Tirop, S.K. BSc (Kenya Methodist), MSc (Nairobi)

Senior Technologists

- Penina Nduhiu, HND
- Charles Ikutwa, Diploma Range mgt
- Ms. Martha Kimani, B.Sc. MSc.
- Ms. Caroline Kyalo, B. Biotechnology

Technologists

- Eliud Gachuhi - Diploma
- John Musembi. K. - Certificate
- Stanley Kiamuli - Diploma
- James Ndiritu - Diploma
- John Kimotho - Diploma

Laboratory/Technical assistants

- Simon N. Mbote - Certificate
- Ms Lilian Muchiri

Field Assistants

- Ferdinard Anyika - Field Assistant

Secretaries

- Grace Njenga
- Esther M. Waribu

Store keeper

- Wilson K. Wanjohi - Certificate

Subordinate staff

- Mercy Waweru
- Benta Odiyo
- Joseph Onganyo
- Martha Gitonga
- Hellen Chepngeno

Machanga Field Station

- Justa N. Njue – Subordinate
- Eustus Gichoni – Security
- Peter Mutemi - Security

Ngong Field Station

- Mary N. Kinyua - Subordinate Staff

Kibwezi Dryland Field Station

	NAME OF STAFF	DESIGNATION
1	James Tandazi	Assistant Security Supervisor
2	John Wambua	Stores Clerk A
3	Esther Kamau	Accounts Clerk III
4	David Kyaluma	Security Guard II
5	Richard Kisingu	Security Guard II
6	Elizabeth Noah	Receptionist/Cleaner
7	Nicholas Muneene	Subordinate II
8	Ali B. Isaak	Subordinate II
9	Antony Mutie	Security Guard II
10	Samuel Kyengua	Security Guard II
11	Kennedy W. Namango	Electrician IV
12	Benjamin K. Singi	Carpenter II
13	David M. Munyao	Security
14	Moses Mutinda	Security
	John O. Akite	Security

12. NAIROBI UNIVERSITY RANGE MANAGEMENT STUDENTS (NURMSS)

- Chairman – Lutta Alphao – A25/0156/09
- Treasurer- Lugusa Clarkson – A25/0146/09
- Sec. Gen. – Odhiambo Stanley – A25/0139/09
- Sec. Gender Affairs – Bernice Mereina Sainapo – A26/3722/2011



Aware and enthusiastic about this year's CAVS tree planting theme 'Greener Cleaner Environment', students and staff endured the hot and dry weather in Kibwezi on April 17, 2013 to plant a total of 1000 seedlings. The seedlings were strategically planted just before the on-set of the rains to ensure they fully benefit from the usually very short and erratic rainy season.