

Department of Biomechanical Engineering List of Publications
(Dr. John M. Gathenya)

1. Mwangi, J. K., Gathenya, J. M. & Ondieki, C. M. (2008). Estimating parameters of IHACRES Conceptual Model for Tana Basin, Kenya. *International Journal for Disaster Management & Risk Reduction*, ISSN: 1992-2744, 1(2), pp69-82.
2. Mwangi, J. K., Gathenya, J. M. & Ondieki, C. M. (2008). Application of IHACRES Conceptual Rainfall-runoff Model to Simulate Daily Stream Flow in Upper Tana Basin, Kenya. *Journal of Civil Engineering, Research and Practice [Online]*, ISSN: 1729-5769, 5(2), pp69-82.
3. Mwangi, J., Gathenya, J., & Ondieki, C. (2007). Regionalising Parameters of a Conceptual Rainfall-Runoff Model for Stream Flow Estimation in Ungauged Catchments. *Journal of Civil Engineering Research and Practice [Online]*, ISSN: 1729-5769, 4(2). pp61-74 Available: <http://www.ajol.info/viewarticle.php?id=36806>.
4. Sang, J., Gathenya, M. & Ndegwa, G., (2007). Evaluation of reservoirs as a flood mitigation measure in Nyando basin, Western Kenya using SWAT. *European Journal of Scientific Research*, ISSN: 1450-216X, 18(2). pp231-239.
5. Muthusi F.M., Gathenya, M., Gadain, H., Kaluli, W., & Lenga, F. K. (2005). Application of the USGS Streamflow Model to the Nyando Basin, Western Kenya. *European Journal of Scientific Research*, ISSN: 1450-216X, 12(1). Pp 9-19.
6. Gathenya, M. (2005). Methodology for Evaluating the Regional Impact of Climate Change on Water Resources In: Jansky, L., Haigh, M.J., & Prasad, H. (2005). *Sustainable Management of Headwater Resources*. United Nations University Press. ISBN 9280811088, pp205-218
7. Gathenya, J. M. 1999. The application of water balance models for water management on the Thika-Chania catchment in Kenya. University of Kaiserslautern, Institute for Hydraulic Engineering and Water Management, 1999 ISSN 1433-4860 (written in German)
1. Kigira, F. K., Gathenya, J.M., Home, P.G. 2008: Modeling the influence of land use changes on hydrology and sediment yield in a river catchment using SWAT model. Paper presented at 3rd Int. Conf. On Appropriate Technology, 12th-15th November, 2008, Kigali, Rwanda.
2. Gathenya, J.M, Ritho, C.N., Home, P.G., Ngamau, C.N. & I.G. Munyiri (2008). Characterization of smallholder pumped irrigation in Kenya. Proc. Commission for Higher Education Research Dissemination Workshop, 26th to 31st August 2008, Mombasa, Kenya.
3. Home P.G. Dienya R. N. Gathenya J. M. 2007. Evaluating the damming alternatives of upper Nyando River to meet full potential rice irrigation development in the Kano Plains. Proceedings of 2007 JKUAT Scientific, Technological and Industrialisation Conference. 25-26 October 2007, JKUAT, Kenya.
4. Kigira, F. K., Gathenya J.M., Home P.G. 2007. Modelling the influence of land use changes on sediment yield and hydrology in Thika River Catchment. Proceedings of 2007 JKUAT Scientific, Technological and Industrialisation Conference. 25-26 October 2007, JKUAT, Kenya.
5. Gathenya, J. M. Kinyari, P. K. Malesu, M. Oduor A. (in press). Domestic rainwater roof water harvesting nomographs for Kenya. Technical Report Relma in ICRAF.
6. Mutie, S. M., Mati, B. M., Home, P. G., Gadain, H., Gathenya, J. M. 2006. Evaluating land use change effects on river flow using USGS Geospatial streamflow model in the Mara river basin, East Africa. A paper presented during the second Workshop of the EARSeL SIG on Remote Sensing of Land Cover, Bonn, Germany, 28th-30th September, 2006.
7. Kaluli, W. Nganga, K. Gathenya, J., Kihoro, J. and Muriuki, A. 2005. Water harvesting for household and agricultural water use in Kaiti. Proceedings of 2005 JKUAT Scientific, Technological and Industrialisation Conference. 27-28th October 2005, JKUAT.
8. Nderitu, A. Kaluli, W., Gathenya, M. 2005. Use of watershed models for enhanced water resources management in arid and semiarid watersheds: Kaiti watershed case study. Proceedings of 2005 Scientific, Technological and Industrialisation Conference. 27-28th October 2005, JKUAT.
9. Gathenya, J. M., Kinyari, P. K., 2005. Rainwater harvesting tank sizing nomograph. Proceedings of 2005 Scientific, Technological and Industrialisation Conference. 27-28th October 2005, JKUAT.
10. Gathenya, J. M. and W. Kaluli 2004. Hydrologic Data Availability For Water Resources Planning In Makueni District WAITRO Biennial Congress , 6th – 11th September 2004, Nairobi, Kenya

11. Gathenya, J. M. 2003. Influence of spatial discretization on catchment water balance simulation. Proc. Int. Civil Engineering Conference on Sustainable Development in the 21st Century, 12-16th August 2003, Nairobi, Kenya.
12. Gathenya, J. M., Gichuki, F. N. and Liniger H. P. 2000. Problems of River-Water Management for a Basin West of Mount Kenya: Challenge to Water Resource Planners. In: F. N. Gichuki et. al (Eds) 2000. Land and Water Management in Kenya. Towards Sustainable Land Use. Proc. 4th National Workshop, 15-19 February, 1993, Kikuyu, Kenya.

Dr. George M. Ndegwa

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3. Ndegwa G.M. (1988). *Water Management of Katangi Agricultural Project, Machakos District*. Annual Report, National Agricultural Laboratories (NAL), Ministry of Agriculture, Nairobi, Kenya. pp47 - pp49.
4. Ndegwa G.M. and Radiro M.P.O. (1990). *Some Small-scale Irrigation Projects of Central Province of Kenya*. IDRP Report No. 51, National Agricultural Laboratories (NAL), Ministry of Agriculture, Nairobi, Kenya. 32p.
5. Mwarasoba L.I., G.M. Ndegwa and M.K. Nyang'wara (2006). *Evaluation of the project on improving the performance of irrigation in Kenya*. IPIA project, KARI, Nairobi, 54p.

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7. Ndegwa, G.M. (1986). *Irrigation Scheduling: Irrigation Management Services (IMS). Evaluation of a computer-aided irrigation scheduling model*. MSc. Thesis, Silsoe College, Cranfield Institute of Technology, U.K. 119 P.
8. George Maina Ndegwa (1996): *Rationalization of irrigation water requirement in humid upland fields of Japan*. Ph.D. Thesis, Okayama University, Japan.113p.

Refereed Journals:

9. Yomota A. and Ndegwa G.M. (1995). *Water use for upland irrigation in a humid region of Japan*. Journal of Agricultural Water Management. Elsevier Publishers B.V., Amsterdam, 28(3):185-200.
10. George Maina Ndegwa and Atsushi Yomota (1995). *Causative factors of low water use in a typical upland irrigation district of West Japan*. Transactions of Japanese Society of Irrign, Drainage and Reclamation Engineering (JSIDRE), Tokyo, Japan. No. 186: 899-908.
11. George M. Ndegwa and Atsushi Yomota (1996). *Estimation of actual irrigation Requirement by the water balance method*. Journal of Faculty of Environmental Science and Technology, Okayama University, Okayama, Japan. 1(1): pp151- 62.
12. Ndegwa G.M., P. Kamoche and T.N. Mugendi (2006). Effects of irrigation on soil physical properties in an upland smallholder sprinkler irrigation scheme in Kenya .Journal of Agriculture, Science and Technology (JAGST), JKUAT, Vol 8 (2), pp 27-40.
13. Ndegwa G.M., N.K. Muriithi, and P.M. Nyariki (2006). Performance and field practice of Small holder irrigation: The case study of Mitunguu irrigation scheme of Kenya. Journal of Civil Engineering Research and Practice (JCERP), Vol. 3 No. 2, pp 27-40.

14. Ndegwa G.M. and M. Lesukat (2007). Evaluation of parameters affecting emitter Discharge of some low-head drip irrigation technologies in Kenya. *Journal of Agriculture, Science and Technology (JAGST)*, JKUAT, Vol. 9(1), pp 28-43.
15. Sang J, J.M.Gathenya, and G.M. Ndegwa (2007). Evaluation of reservoirs as flood mitigation measure in Nyando basin, Western Kenya using SWAT. *European Journal of Scientific Research (EJSR)*, Vol. 18 no 2, pp 231-239.

CONFERENCES, WORKSHOPS AND SEMINAR PRESENTATIONS

16. Ndegwa G.M. (1991). *Effects of soil permeability on rice yields, the Wamumu case study*. Paper presented at the Kenya Society of Agricultural Engineers (KSAE) Seminar on Mechanization Of Rice Farming in Kenya, Jomo Kenyatta University, Kenya. Nov 26 -27.
17. Yomota A. and G.M. Ndegwa (1994): *Actual water use in an upland irrigation district* (in Japanese). Irrigation, Drainage and Reclamation Engineering 'Gakkai' publication, Tokyo Japan. pp544-545.
18. Ndegwa G.M. (1996). *Water use in a typical irrigation district of Japan*. Paper presented at the Kenya Society of Agricultural Engineers (KSAE), Nairobi, Kenya.
19. Bancy M. Mati, Rosalin Mukua and George M. Ndegwa (2005). *Identifying best bet clays for lining water storage pans: An intervention with commercial potential for communities*. Paper presented at the JKUAT Scientific Conference, 27th – 28th October.
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22. Waruru B.K., Keith D. Shepherd, G.M. Ndegwa and Andrew M. Silas (2007). Indexing wet-stable aggregation for diagnosis of soil sodicity. Paper presented at the Kenya Agricultural Research Institute mini-conference, Nairobi, Kenya. 5th – 7th Nov.
23. Ndegwa George M., O. B. Jared and C.O. Koderu (2007). *Impacts of quarrying on water quality along Ndarugu River of Thika District*. Paper presented at the 8th WaterNET / WARFSA/ GWP-SA Symposium, Lusaka, Zambia, 31st Oct – 2nd Nov.
24. Kalungu J.W., Rodrigo Roman, M.V. Folegatti, and G.M. Ndegwa (2008). *Effects of irrigation depths and fertigation on tomato yield and water use efficiency in S-EBrazil*. Paper presented at the Brasil Conference on Agricultural Engineering, Igguassu Falls, Brazil (Aug, 2008).
25. Ndegwa George M. (2008). *Soil science education at Jomo Kenyatta University of Agriculture and Technology (JKUAT)*. Paper presented during Workshop on Soil Science Frontiers, organized by New Partnership for Africa's Development (NEPAD), ICRAF, Nairobi. 28th April.

Prof. B Mati

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5. Peden, D., Tadesse, G and Misra, A.K. with contributing authors, Ahmed, F.A., Astatke, A., Ayalneh, W., Herrero, M., Kiwuwa, G. Kumsa, T. Mati, B., Mpairwe, D., Wassenaar, T., and Yimegnuhail A. (2007). *Water for Food, Water for Life: A Comprehensive Assessment of Water Management in Agriculture*. London: Earthscan and Colombo: International Water Management Institute", 485-514. ISBN: 978-1-84407-396-2.
http://www.iwmi.cgiar.org/assessment/Publications/research_reports.htm
6. Nackoney, J., Mati, B., Mock, G, Henninger, N., et al 2007. Water. In: Nature's benefits in Kenya. An Atlas of ecosystems and human well-being. World Resources Institute, Government of Kenya and ILRI; World Resources Institute, UK and USA, 25-41. ISBN: 978-1-56973-642-5. <http://www.wri.org/publication/natures-benefits-in-kenya#>
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8. Mati, B. M. 2007. Sub-Saharan Africa cannot afford to miss the Livestock Revolution as well! Africa Water & Sanitation. Transworld Publishers, Nairobi, Kenya. pp 23-25.
9. Mati, B. M., Hatibu, N. Phiri, I.M.G. and Nyanoti, J.N. (eds) 2007. Policies and Institutional Frameworks for Agricultural Water Management in Eastern and Southern Africa. IMAWESA, Nairobi, pp 39.
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12. Mati, B. M. Project-Scale Interventions for Agricultural Water Management in Africa. Paper presented at the ICID 2ND African Regional Conference, Johannesburg, South Africa, 6 – 9 November 2007.
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17. Phiri, I.M.G., Phiri S.K. and Saka A.R. Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management in Malawi. Mati B.M. (editor). IMAWESA Research Report 1D. MATI, B.M. (ed). IMAWESA, Nairobi, pp 31.
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19. Kagabo, D., M, Nabahungu, L. and Kayiranga, D. 2007. Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management in Rwanda. Mati B.M. (editor). IMAWESA Research Report 1F. MATI, B.M. (ed). IMAWESA, Nairobi, pp 25.

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21. Tumbo, S; Mutabazi, K. and Rajabu, K. 2007. Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management in Tanzania. Mati B.M. (editor). IMAWESA Research Report 1H. MATI, B.M. (ed). IMAWESA, Nairobi, pp 56.
22. Nyagumbo, I. and Rurinda, J. 2007. Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management in Zimbabwe. Mati B.M. (editor). IMAWESA Research Report 1J. MATI, B.M. (ed). IMAWESA, Nairobi, pp 85.

Dr. Wambua Kaluli

1. Muthusi, F.M, M. Gathenya, H. Gadain, W. Kaluli and F.K. Lenga. 2005. Application of the USGS streamflow model to the Nyando Basin, Western. European Journal for Scientific Research, Vol 12. No 1 pp 9-19.
2. Kaluli, W., P.G. Home & F.K. Lenga. 2005. Agricultural Research: Training of core competencies in Agricultural Engineering, in response to current national needs. A paper presented during the planning workshop on National Agricultural Research Systems (NARS) Organized by Kenya Agricultural Production Project. June 27-30, 2005, Kunste Hotel, Nakuru, Kenya.
3. Nderitu, A., W. Kaluli, M. Gathenya. 2005. Watershed management for water and food security in Kaiti Catchment of Makueni District. Food Security Workshop. Nairobi
4. Wambua Kaluli, Jane Gathenya, John Gathenya, John Mwaniki Kihoro. 2004. Household water supply and rainwater harvesting in Makueni District. Proceedings of the WAITRO Conference, September 6-11, 2004, Safari Park Hotel, Nairobi
5. Mwangi Gathenya and Wambua Kaluli. 2004. Hydrologic data availability for water resources planning in Makueni district. Proceedings of the WAITRO Conference, September 6-11, 2004, Safari Park Hotel, Nairobi
6. Anthony Nderitu, Wambua Kaluli, Mwangi Gathenya, Charles Situma & Peter Kariuki. 2004. Use of Remote Sensed Data for Resource Mapping in Kaiti Watershed. Proceedings of the WAITRO Conference, September 6-11, 2004, Safari Park Hotel, Nairobi
7. Wambua Kaluli and Mwangi Gathenya. 2004. Water Supply and Sanitation in Makueni District. Proceedings of the WAITRO Conference, September 6-11, 2004, Safari Park Hotel, Nairobi
8. Kaluli, J.W. and S. Mutie. 2003. Wastewater reuse for environmental protection and food production. Proceedings of the International Civil Engineering Conference on Sustainable Development in the 21st Century. JKUAT & Institution of Engineers of Kenya
9. Kaluli, J.W., C.A. Madramootoo, X. Zhou, A.F. Mackenzie and D.L. Smith. 1999. Subirrigation systems to minimise nitrate leaching. J. Irrigation and Drainage Engineering. ASCE. 125(2): 52-58.
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12. Kaluli, J.W., S.O. Prasher, R.S. Clemente and F. Salehi. 1997. Performance evaluation and comparison of three pesticides transport models. Canadian Water Resources Journal, Vol. 22(1): 71-87.
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14. Kaluli, J.W. and C.A. Madramootoo. 1995. Water table control and cropping systems for improved water quality. CSAE Paper No. 95-117; Presented at the Canadian Society of Agricultural Engineering Conference: July 9-12, 1995 - Ottawa, Ontario.

15. Kaluli, J.W., C.A. Madramootoo, S. Babarutsi and X.M. Zhou, 1995. Evaluation of the SOIL and SOILN models under Quebec Conditions. CSAE Paper No. 95-106; Presented at the Canadian Society of Agricultural Engineering Conference: July 9-12, 1995 - Ottawa, Ontario.
16. Kaluli, J.W., C.A. Madramootoo, A.F. Mackenzie and R. Knowles. 1994. Measuring denitrification using redox potential. ASAE Paper No. 942007 presented at the summer conference of the American Society of Agricultural Engineers (ASAE). June 20 - 25, 1994, Kansas City, U.S.A.
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18. Kaluli, J.W. and L.W. Gatharia. 1991. Rice production trends in the main irrigation schemes in Kenya. Paper presented in the "Mechanisation of Rice Farming in Kenya Seminar." November 26 - 27, 1991, Jomo Kenyatta University College of Agriculture and Technology (JKUCAT), Juja, Kenya. Organised by JKUCAT and Japan International Co-operation Agency (JICA).

Dr. Patrick G. Home

1. Mutie, S.M., Mati, B., Home, P., Gadain, H. and Gathanya, J. 2006. Evaluating land use change effects on river flow using USGS geospatial stream flow model in Mara river basin, Kenya. Centre for RS of Land Surfaces, Bonn, 141-148.
2. P.G. Home, R.K. Panda and S. Kar. 2004. Irrigation management Effects on Water and Nitrogen use and Balances in the Root Zone of Okra (*Abelmoschus Esculentus* L.) Crop. In: Msaky J.J.T., G.P. Msumali and F.B.R. Rwehumbiza (2004). Soil Science Research and Technologies: Foundations for Sustainable Food Security: Proceedings of the 19th Conference, 2-7 December 2001, Moshi, Tanzania. ISBN 9966-879-27-7.
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5. Home, P.G. and R.K. Panda. 2000. Transport and retention of nitrate-N in the root zone under different irrigation scheduling techniques. *Water Recycling and Resource Management in the Developing World*, 559-564 pp.
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9. F.K. Kigira, J.M. Gathanya and P.G. Home. 2007. Modelling the effect of land use changes on sediment yield and hydrology in Thika River catchment. 3rd JKUAT Scientific, Technological and Industrialization Conference. "Galvanising Science and Technology for Industrialisation: Towards the Millennium Development Goals". 25-26th October, 2007.
10. J.M. Gathanya, P.G. Home, J.K. Sang, S.M. Mutie and L.P. Ongweno. 2007. Payment for Environmental Services (PES): An innovative solution to Catchment Management. 3rd JKUAT Scientific, Technological and Industrialization Conference. "Galvanising Science and Technology for Industrialisation: Towards the Millennium Development Goals". 25-26th October, 2007.
11. Nganga S. K., Gathanya, J. M., Kaluli, W. and Home P. G. 2006. Application of WASIM model to predict root zone soil moisture under semi-arid conditions. JKUAT Scientific, Technological and Industrialization

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12. Nganga S. K., Gathenya, J. M., Kaluli, W. and Home P. G. 2006. Effect of different on-farm water harvesting methods on soil moisture, crop development and crop yield in semi-arid environments, JKUAT Scientific, Technological and Industrialization Conference. "Harnessing Scientific and Technological Synergies for Innovation and Rapid Industrialization"
 13. Home, P. G. Ndigithe, P. M. and Shitanda, D. 2006. Storage and preservation of seed grain under enhanced hermetic conditions. JKUAT Scientific, Technological and Industrialization Conference. "Harnessing Scientific and Technological Synergies for Innovation and Rapid Industrialization"
 14. Mutie, S. M., Mati, B. M., Home, P. G., Gadain, H., Gathenya, J. M. 2006. Evaluating land use change effects on river flow using USGS Geospatial streamflow model in the Mara river basin, East Africa. 2nd Workshop of the EARSeL SIG on Remote Sensing of Land Cover, Bonn, Germany, 28th-30th September, 2006
 15. Patrick Home, Simon Mutie, Bancy Mati, Felix Mtalo and Hussein Gadain: Scenario studies on the impact of land use changes in the transboundary Mara River Basin and their impact on the flow characteristics of River Mara. Institution of Engineers of Kenya International Conference on The Engineer and Regional Integration. Nairobi. April 26-28, 2006.
 16. Mutie S.M., Mati B., Home P., Gadain H.: Evaluating Land use change effects on River flow using Geo spatial Stream Flow Rainfall Runoff model in Mara River basin, Kenya: JKUAT International Conference on Technology and Industrialisation, 27-28th October 2005.
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 19. Simon Mutie, B M. Mati, P.G Home, and Rispha Muraya. 2004. Assessment of land use and land cover change of Mara River Basin using Remotely sensed Data and GIS: SSSEA December, 2004.
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