

CURRICULUM VITAE

OYUKO ONYANGO MBECHÉ
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oyuko@nbnet.co.ke

1 November 1946

DATE OF BIRTH

Male

SEX

Kenyan

NATIONALITY

Married with four children

MARITAL STATUS

ACADEMIC QUALIFICATIONS

1990: PhD, Transportation Planning and Engineering, Department of Civil Engineering, *University of Nairobi*.

1972: MSc, Transportation Planning and Engineering, *Polytechnic Institute of Brooklyn*, Brooklyn, New York, USA

1970: BEng, *Stevens Institute of Technology*, Hoboken, New Jersey, USA

SCHOLARSHIP AWARDS

1982-1985: Nairobi University, Institute of Population Studies, Ford Foundation Research Fellowship Award

1967-1970: The Port Authority of New York and New Jersey Educational Grant

1965-1967: Stevens Institute of Technology, Hoboken, New Jersey, Educational Grant

AREA OF SPECIALIZATION

Land use planning, transportation economics, and urban transportation planning including modelling, system impacts, decision making, finance and budgeting, systems operations and maintenance; and transportation engineering with emphasis in terminal planning and design (including airports, port docks and harbours, and truck and bus terminals), safety and pollution control, pipeline and belt conveyor transport, railways, highway and traffic engineering.

Training private/parastatal and government professional engineers in the East African region (i.e., Ethiopia, Kenya, Malawi, Uganda and Tanzania) in project appraisal and management—including design, construction, supervision and maintenance—and transportation in general

PROFESSIONAL MEMBERSHIPS

Member, American Society of Engineering Education (MASEE)

Member, American Society of Civil Engineers (MASCE)

Member, Kenya National Academy of Sciences (KNAS)

**ACADEMIC EXPERIENCE UNIVERSITY OF NAIROBI,
DEPARTMENT OF CIVIL ENGINEERING**

1984 to present: Senior Lecturer, University of Nairobi,
Kenya
1976-1984: Lecturer, University of Nairobi, Kenya

Teaching Responsibilities

Undergraduate courses taught

- Statics and Strength of Materials
- Theory of Structures
- Civil Engineering Drawing and Design
- Railway Design and Maintenance
- Highway Materials
- Highway and Traffic Engineering
- Pavement Design and Maintenance Transportation Engineering

Graduate courses taught

- Transportation Systems
- Transportation Planning
- Transportation Data Analysis
- Transportation Economics
- Transportation Terminals
- Transportation Safety and Pollution Control

University Responsibilities

- Chair, Department of Civil Engineering, to 35-member teaching staff; 22 technical staff; and 300 BSc students in addition to 15 MSc students annually. In charge of staff recruitment and supervision, teaching, counselling of students at undergraduate and postgraduate levels, general administration, research and consultancy (*August 1990 to July 1996*)
- Coordinator, ILO - Road Labour Based Construction Methods (*1995 to date*)
Curriculum Development (1988 -1990)
- Implementation of new Kenyan undergraduate syllabus in civil engineering (1990 to date)
- Member, Engineers Registration Board Academic Qualification Committee (1990 to *July 1996*)
- Coordinator, application and preparation of Department of Civil Engineering equipment for the World Bank Investment Procurement Project (1990 to *July 1996*)
- Member, University Senate (1989 to *July 1996*)
Member, College Academic Board (1989 to *July 1996*)
- Member, Faculty Short listing Committee (1987 to *July 1996*)
Member, National Road Safety Council (1987 to 1998)
- Coordinator, Graduate Students Applications (1980-1986)

- Coordinator, Engineering Students Employment (1977-1980)

Research Interest

- Land use planning, transportation economics and urban transportation, including modelling, system impacts and decision-making
- Transportation engineering in terminal planning and design (including airports, port docks and harbours, railways, truck and bus terminals), safety and pollution control

Postgraduate Supervision

- "Stability of Black Clays as High Fill Material", PhD thesis research in progress by A. Munga, Department of Civil Engineering, University of Nairobi-Main *Supervisor* (August 19% - on going).
- "Study of Flexible Pavement Performance", PhD thesis research by S. K. Mwea, Department of Civil Engineering, University of Nairobi - *Co-supervisor* (from 1993, degree awarded in 2002)
- "Air Quality-Based Service Flow Rates for Urban Arterials: A Study of Some Arterials in Nairobi, Kenya", PhD thesis research by T. Oketch, a DAAD fellow at the University of Karlsruhe, Germany - *Local Supervisor* (from 1996, degree awarded 2001).
- "Traffic Circulation and Safety in the City of Nairobi", MSc thesis by V. Maundu, Department of Civil Engineering, University of Nairobi - *Co-supervisor* (degree awarded 1996)
- "Air Transport in Kenya: An Analysis of Domestic and International Airline Networks", PhD thesis by E. M. Irandu, Department of Geography, University of Nairobi - *Co-supervisor* (degree awarded 1995)
- "Stochastic Methods in Urban Transportation Planning: A Case Study of Kisumu", MSc thesis by G. P. K. Matheri, Department of Civil Engineering, University of Nairobi - *Supervisor* (degree awarded 1992)

UNIVERSITY OF DAR ES SALAAM, TANZANIA, FACULTY OF CIVIL ENGINEERING AND THE BUILT ENVIRONMENT, DEPARTMENT OF TRANSPORTATION AND GEOTECHNICAL ENGINEERING

2003-2004- On sabbatical on a UNESCO-ANSTI visiting scholar, conducting research and teaching "Transportation Planning and Economics, and Highway Materials" to postgraduate students

2001 to 2003- External Examiner

1997 to 1999-Postgraduate visiting scholar staff in Transportation Planning and Economics

1969-Taught land surveying, physics, mathematics and computer programming (Fortran IV) to incoming university students for the Stevens Technical Enrichment Programme

STEVENS INSTITUTE OF TECHNOLOGY, HOBOKEN, N. J., USA

PROFESSIONAL EXPERIENCE 1981-Date

KENYA, QUECONSULT, NAIROBI

1998 to date: KENYA, KARIRANA ESTATE LTD

Factory rehabilitation and extension works at Karirana Tea Factory (K)

Ltd, Limuru. Project valued at Ksh25 million

Designation: Project Civil/Structural Engineer

1987-1996: KENYA, INSTITUTE OF RESEARCH AND CONSULTANCY UNIT (IRCU)

Responsible for design and supervision of civil works comprising site surveying, service roads, stormwater drainage and sewerage structures for 16 university staff housing maisonettes, Laikipia Road, Nairobi. Project valued at Ksh17 million

Designation: Project Civil/Structural Engineer

Oct. 1992-Jan. 1993: KENYA, DEVELOPMENT FINANCE COMPANY OF KENYA

Environmental Impact Assessment — Lake Victoria Fish (LVF) Ltd report submitted to Development Finance Company of Kenya

1987-1993: KENYA, IRCU, UNIVERSITY OF NAIROBI Responsible for design and supervision of civil works including roads, stormwater drainage and sewerage for Mamlaka university staff housing flats, at Main Campus, Nairobi. Project valued at Ksh20 million Designation: Project Civil Engineer

1986-1988: KENYA, MBEJI ACADEMY

Prepared inception report, conducted ground surveys, carried out financial assessment and project cost benefit analysis; designed related education facilities and ancillary staff housing for estimated 400 students body. Project valued at Ksh17 million

Designation: Project Civil/Structural Engineer

1984-1986: KENYA, THE INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY.

Prepared feasibility report and was involved in the construction of phase II staff housing, extensions to classrooms and laboratory facilities. Project valued at Ksh39 million

Designation: Project Civil/Structural Engineer

1982-1984: KAGORO MIXED SECONDARY SCHOOL Designed educational and dormitory facilities for an estimated 400 students in addition to eight housing units under the auspices of County Council of Kisumu. Project valued at Ksh8 million. **Designation: Principal Associate Civil Engineer**

1979-1980: KENYA, KIGONI AND PARTNERS,

CONSULTING ENGINEERS

Completed inception and design report for access roads to Nyeri Hill Repeater Station for Kenya Posts and Telecommunications Corporation. Project valued at Ksh3 million

Designation: Principal Associate Civil/Structural Engineer

1978-1980: KENYA, MINISTRY OF TRANSPORT AND COMMUNICATIONS, ROADS DEPARTMENT Consultant to Norconsult on the Kenya-Sudan Link Road A1, Kapenguria to Juba

Designation: Route Location and Geometries Engineer

1975-1977: KENYA, NORCONSULT A.S., CONSULTING ENGINEERS AND ECONOMISTS Designed the Kenya-Sudan Link Road A1, over 300 km long and valued at Ksh450 million, to bitumen standard **Designation: Project Design Engineer**

1974-1975: KENYA, NORMAN & DAWBARN, ARCHITECTS, CONSULTING ENGINEERS AND TOWN PLANNERS, NAIROBI

Designed foundations, reinforced concrete, structural steel, drainage earthworks, service roads, parking lots and garages in the following projects: TANESCO Housing Scheme, Monduli College of National Education, Mwanza Fishmeal Factory, East African Airways Terminal (all in Tanzania); Eldoret Library and Ramogi Institute of Advanced Technology (both in Kenya)..

Designation: Civil/Structural Engineer

1973-1974: KENYA, EAST AFRICAN ENGINEERING CONSULTANTS, NAIROBI

Responsible for economic feasibility studies, route location, preliminary and final designs and cost benefit assessments for trunk and secondary roads for the Ministry of Transport and Communications, Kenya. Project values for roads designed:

Meru-Maua Road — Ksh50 million Kitale-Kapenguria Road — Ksh40 million Nakuru-Thompsons Falls Road — Ksh30 million Nakuru-Eldama Ravine Road—Ksh20 million

Designation: Highway /Traffic Engineer

1970-1972: NEW YORK, THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY, CONSTRUCTION DIVISION, N.Y., USA

1972. Responsible for pricing, estimating of construction work and materials, payment application of contractors, delays,

extension of time, approvals, claims, liens and manpower scheduling.

Designation: Office Engineer

1971. Supervised construction work, inspected new construction and materials to ensure compliance with code requirements, safety, ease and economy maintenance on Port Authority facilities.

Designation: Field Engineer

1970. Conducted property surveys of facilities belonging to Port Authority for proposed new constructions. Checked integrity, alignment, settlement and possible movement of bridges, tunnels and port piers. Performed setting out and construction survey at the Port Authority World Trade Centre. Performed grading, paving, drainage and obstruction surveys for runways, taxiways and aprons at the Port Authority airports (Kennedy International, Newark, La Guardia, and Teterboro). Conducted building construction and rail tracks location surveys at Port Authority's Trans-Hudson Tubes and new Journal Square Transportation Centre. Made field computations, plotted graphs, charts and maps for surveys conducted. Designation: Field Surveyor

1967-1968: NEW YORK, WILLIAMS REAL ESTATE AND PUBLIC NOTARY, BRONX, N.Y., USA

Summers: Land surveyor, property valuer and real estate Sales

REFEREED ACADEMIC PUBLICATIONS AND RESEARCH

Mbeche, O. O., and J. O. Malo, " Household Travel and Activity Diary: An East African Experience in Transport Survey Methodology", *Eastern and Southern Africa I / / Geographical Journal*, submitted in May 2004

Mbeche, O. O., "Accessibility Modelling for a Developing Economy: The Case of Inter-regional Traffic Flows in the Lake Victoria Basin, Kenya" *Journal of Civil Engineering Research and Practice*, vol. 1. April 2004.

Mbeche, O. O., "An Energy Use Model for a Secondary City in a Developing Country—A Transportation Modal Split , i Application for Kisumu, Kenya" *East African Journal of Engineering*, vol. 7, March 2004. II

Mbeche, O. O., " Singly and Doubly Constrained Gravity Models in Trip Distribution Application for Secondary Cities in the East Africa Region", *East African Journal of Engineering*, submitted in November 20

Mbeche, O. O., "Transport and Sustainable Development: The Case of Kenya in East Africa Region". *Proceedings, International Workshop on Recent Trends in Civil Engineering Practice*, Obayashi Foundation, Japan and African Institute for Capacity Building (AICAD), Nairobi, Kenya, 14-15 August 2003

Mbeche, O. O., "Comparative Evaluation in Estimating Trip Generation of Primary and Secondary Cities: The Case of Nairobi and Kisumu, Kenya" *African Journal of Science and Technology*, submitted in July 2002

Mbeche, O. O., and T. O. Otieno, "Design Criteria Considerations of Pedestrian Crossings: The Case of a Major, Arterial in Nairobi", *East African Journal of Engineering*, vol. 6, April 2001.

Mbeche, O. O./"Management of Environmental Effects from Rail and Road Traffic in sub-Saharan Africa" *Paper presented at the Group Expert Meeting on Transport and Sustainable Development*, United Nations Department of (f Economic and Social Affairs (UNDESA), New York, USA, 16-17 October 2000.

Mbeche, O. O., "Energy and Air Quality Assessment in Transport Industry in Kenya". *Proceedings: International Roundtable on Transportation Energy Efficiency and Sustainable Development*, Cairo, Egypt, UNDESA-World Bank-Egypt Ministry of Transport, 5-7 December 1999.

Mbeche, O. O., "A Review of Commercial Renewable Energy Initiatives in Kenya." *Proceedings: International Symposium on Decentralised Energy Alternatives*, UNDESA, Division for Sustainable Development Energy and Transport Branch, Columbia University, New York, USA, 15-17 March 1999.

Mbeche, O. O., "Environmental Impacts of Energy Use in the Transport Sector: The Case of Kenya". *Proceedings: Workshop on Environmentally Sound Energy Development*, United Nations, DESNRM/DESA, United Nations Environment Programme, Nairobi, 12-14 January 1998.

Mbeche, O. O., and T.O. Otieno, "Bicycle Crossings: A Non-Motorised Transport Study in Nairobi". *African Urban Quarterly Journal*, vol. 12, 1998.

Mbeche, O. O., "Patterns of Transportation Household Energy Use of a Secondary City in East Africa: The Case of Kisumu", *Eastern and Southern Africa Geographical Journal* " vol. 8, 1997.

Mbeche, O. O., "Development of Data Base and Analysis of Travel Characteristics in Kisumu: A Case Study of a Secondary City in East Africa", *Eastern and Southern Africa Geographical Journal*, vol. 7, December 1996.

Mbeche, O. O., and G. P. K. Matheri. "Noise and Land Use Conflict: An Environmental Impact Study on Wilson Aerodrome, Nairobi, Kenya" *African Journal of Science and Technology Series A*, vol. 7, April 1995.

Mbeche, O. O., and S. O. Omol, "A Health Service Distribution for Kenyatta National Hospital in Nairobi" *African Urban Quarterly Journal*, vol. 7, August 1993.

Mbeche, O. O., "Transit Traffic by Road in East-Central African Sub-Region: Current Status, Problems and Prospects", *UNDP/UNCTAD Project RAF/88/015*, , , *Proceedings on Transit Traffic: Issues and Prospects* (≪/ Symposium, Mombasa, Kenya, 20-22 June 1991.

Mbeche, O. O., "A Transportation Study of Kisumu Town with Special Reference to Travel Demand Characteristics", unpublished PhD thesis, University of Nairobi, 1990

.Mbeche, O. O., "The Hydraulic Ram Pump in Kenya", ZDRC-MR102e, *Proceedings of a Workshop on Hydraulic Ram Pump (hydrant) Technology*, Arusha, Tanzania, May 1984.

Gichaga, F. J., and O. O. Mbeche, "Transportation for Low Income People in Nairobi, Mombasa and Kisumu", *Proceedings: Large Cities Forum*. International Union of Local Authorities, Nairobi, November 1982.

Mbeche, O. O., "Energy Use in Kenya", *Proceedings: International Workshop on Energy Survey Methodologies for Developing Countries*, US AID/National Academy of Sciences, Jerkyl Island, Georgia, USA, January 1980.

Mbeche, O. O., "Energy Needs in Africa", *Proceedings: International Conference on Alternative Energy and the Offer of the Sun and the Sea*, Milano, 18-20 April 1980.

Schipper, L., and O. O. Mbeche, "Present and Future Energy Demand in Industry and Services Sector in Kenya", *Proceedings: Energy and Environment in East Africa*, ERS-3-80, United Nations Environment Programme, Nairobi, 1980.

McGranahan, G., S. Chubb, R. Nathans, and O. O. Mbeche/"Patterns of Urban Household Energy Use in Developing Countries: The case of Nairobi", *Proceedings: Energy and Environment in East Africa*, ERS-3-80, United Nations Environment Programme, Nairobi, 1980.

Mbeche, O. O., (research student in a joint publication) "Report: Traffic Control in Over saturated Streets Networks", *Highway Research Board* Washington D.C., U.S.A., 1971.

Mbeche, O. O., (research student in a joint publication) "Central Brooklyn Model Cities Area: Transportation Needs of Residents", *Central Brooklyn Model Cities Area*, Brooklyn N.Y., USA, 1971

CHAPTERS IN BOOKS.

Mbeche, O. O., E. Masaoe, D. Mfinanga, D. Nyaoro, F. Mtalo, P. Odira, J. Owino, and R. Wanjala, " *The East African Highway Design Manual*", Sponsored by UNESCO ANSTI programme, publication in progress.

Mbeche, O. O., "A Theoretical Perspective in Travel Demand Forecasting of a Secondary City in a Developing Country", in progress.

Mbeche, O. O., " The Kisumu Transportation Model: A Quantitative Application in Travel Demand Forecasting for A Secondary City in Developing Country, in progress.

Davison, O., O. O. Mbeche, L. Michealis, L. Schipper, S. Ribiero, R. Pacudan, M. Walsh, and Y. Honghian,
"Transportation," Chapter 8. *Special Report on Methodological and Technological Issues in Technology Transfer, Intergovernmental Panel on Climate Change (IPCC)*, Cambridge University Press, UK, 2000.

NON-REFEREED SEMINARS/PRESENTATIONS

Mbeche, O. O. "An Evaluation of Road Accidents in Kenya", paper presented to Agrochemical and Food Ltd and Muhoroni Sugar Company staff, August 1994.

Mbeche, O. O. "Road Infrastructure in Nyanza 30 Years Post Independence", proceedings of a Leader's Conference -*Where we were, where we are and where we are going*, Kisumu, Kenya, 10-11 December 1993.

Mbeche, O. O. "City Engineers Department", proceedings of Top Management Operational and Billings Training Programme, Nyeri, Kenya, 17-19 June 1993.

Mbeche, O. O. "An Application of Remote Sensing in Route Location: The Case of Kenya-Sudan Link Road, A1", paper presented in the Faculty of Engineering, University of Nairobi, 1987.

Coordinator of meeting for 35 experts on "Report on World Energy Assessment", held at UNEP headquarters under auspices of UNDESA, UNDP, Nairobi, 24-26 January 2000.

Coordinator of meeting for 30 experts on "Workshop on Environmentally Sound Energy Development", under the auspices of UNDESRM/DESA, UNEP headquarters, Nairobi, 12-14 January 1998.

Chair/ host for "Workshop Material Properties and Construction Control Influence on Pavement Design and Performance" for 50 participant practising engineers from government and private road transport industry, under the auspices of the University of Nairobi and University of Pretoria, Faculty of Engineering, Nairobi, March 1995.

Chair/ host for "Workshop on Pavement Maintenance and Rehabilitation " for 50 participants, practising graduate engineers from government and private road transport industry, under the auspices of the University of Nairobi and the University of Pretoria, Faculty of Engineering, Nairobi, 25-29 November 1993.

English, Kiswahili, Luo and working knowledge of French

