

CURRICULUM VITAE

1. REFERENCE INFORMATION

Name: Japhet Kaburu Rutere
Passport/ID No.
Residential Address: Nairobi
Postal Address: P.O Box 67744-00200; Nairobi
Mobile Phone & Email: ruterej@gmail.com
Designation: Dams and Water Resources Engineer/Expert
Name of Firm: Consultant Chartered Engineer/
Integrated Partnership Consultants Ltd (IPCL)
Years with the Firm: 20 Years/Principal
Date of Birth: 1954 Nationality: Kenyan

2. COUNTRIES OF WORK EXPERIENCE AND TRAINING COURSES

Kenya, Uganda, Tanzania, Rwanda, Burundi, Malawi, S.Somalia, Somaliland, S.Sudan, UK, Finland, PR China, Netherlands, South Africa, Ghana, Cote d'Ivoire, Abu Dhabi (UAE)

3. LANGUAGES

4. EDUCATION (Academic & Training Courses)

4.1 University Education:

- 1978 - University of Nairobi –BSc. Eng.(Hons.), Civil Engineering
- 2014-to Date: MSc Eng(EIE), Loughborough University, UK(Online)

4.2 Training Courses/Certificates

- International training and Continuing Professional Development (CPD) Courses in Kenya, South Africa, Ghana, Cote d'Ivoire, Finland, P.R China, UK, Netherlands, Abu Dhabi (UAE).
- 2014(October)-International Training Course Workshop on Earth Slopes/Embankments Slope Stability and Lateral Earth Support Systems-Johannesburg South Africa(University of Durban)
- 2013(July): International Water Conference, WEDC-Egerton University, Kenya
- 2011(July): International Water Conference, WEDC-Loughborough University, UK
- 2011(March): International FIDIC(1999) Contracts-Claims (Johannesburg, South Africa)
- 2010: International FIDIC Contracts (1999 Red Book)-Johannesburg, South Africa
- 2008: International FIDIC Contracts (1999 Red Book)-Netherlands & Abu Dhabi(UAE)
- 2008: 33rd International WEDC Water and Sanitation Conference, Accra-Ghana

- ▣ 2005(Oct): South Africa (Durban): International seminar on Landfill, Geotextiles and Dam Linings and the Environmental Consideration in Design and Construction.
- ▣ 1997: Kenya Road Design Manual Part III Review Seminar, Nakuru, May, 1997. Participant and Resource person/presenter on `Road Drainage and Erosion Control-Environmental Section (GOK & BDDEA);
- ▣ 1995: Effective Construction Site Management Training Course by Federation of Kenya Employers (FKE)/International Labour Organisation (ILO), Nbi;
- ▣ 1993: Road Rehabilitation & Maintenance Course (Univ of Nbi and Pretoria-S.Africa);
- ▣ 1992: Dams Instrumentation Technology Course-PR China; International Study Course/ Workshop on Conditions of Contract (International) by FIDIC and Chartered Institute of Arbitrators (Kenya Chapter) Nbi.;
- ▣ 1991: Tropical Roads Design, Construction, Rehabilitation and Maintenance: Residential Course TRRL-UK), -Earth, gravel, bitumen /concrete roads and storm water drainage;
- ▣ 1990 to Date: Arbitration, Insurance and Contract Law training courses/seminars;
- ▣ 1987: Dam Safety Course, International Commission on Large Dams (ICOLD)-Finland.

5. KEY QUALIFICATIONS (Summary)

Eng.J.K.Rutere is a Kenyan registered and UK (*ICE*) chartered engineer with **38 Years** post graduate professional training and practical engineering experience on **Integrated Water Resources Engineering Management: Dams (all types), Pans(Hafirs) Water Supply, Irrigation, Hydrology, and Hydraulics** for development and rehabilitation projects undertaken in *Kenya, Uganda, Tanzania, Rwanda, Burundi, Malawi, Somalia, Somaliland and S.Sudan* gained while in full time employment of renowned consulting engineering firms and as an independent consultant since graduation from the University of Nairobi in 1978. In 1994 he became an independent consultant providing consultancy, technical assistance, audits, monitoring and evaluation services to a broad clientele base nationally and internationally viz: **World Bank, ADB, UN, USAID, INGO's, Govts etc..**

He has successfully completed water resources and hydrological technical studies in the following river basin systems: **Kenya: Ewaso Ngiro North, Rift Valley, Lake Basin, Tana and Athi Rivers (TARDA) and Coast Province, Tanzania: Kilimanjaro, Arusha, Tabora and Dodoma Regions.** In the execution of the assignments he was directly involved in the assessment and evaluation of the quantity and quality of water through field measurements and computer aided hydrological and hydraulic analysis. For water quality analysis he obtained field samples which were subsequently tested in university and or research laboratories for the determination of the potability of the water at source and treatment requirements to meet international chemical, physical and bacteriological standards viz: **WHO Drinking Water Standards, FAO/IFAD-Irrigation Water Standards etc.**

His professional and practical involvement in all types of water supply and conservation dams since 1980 (>300) viz: earth, concrete, pans, ponds, sand, subsurface, wells and boreholes has earned him highly consolidated skills in practical applications of engineering hydraulics, hydrology and geology in offering sustainably appropriate solutions to real life engineering problems in water resources assessments, budgets and audits.

In carrying out most of the field measurements he manufactured his own adaptable field instruments based on renowned hydrostatic, hydrodynamic, hydrokinematic principles and formulae eg Bernoulli,

Newton, Dimensional Analysis, Hydraulic Modelling etc. Some instruments/devices used: V, Rectangular and Cippoletti Notches, PitotTube, Single and Double Floats ,Mouth Pieces, Nozzles, Flumes, Level Gauges etc.

He has attended and participated in international symposia, seminars, workshops and conferences, viz:

1987: Finland -Dam Safety Course: Analysis, Operation & Management, Floods and Safety, Hydraulics and Instrumentation

1992 Peoples Republic of China (PR): Dam Safety Monitoring Technology /Instrumentation Course: Embankment Safety, Flood Estimation and Forecasts, Hydraulic Instruments Design, Calibration and Management.

A summary of the expert services that he has been offering to clients on dams are viz :

Studies and design of new and existing dams-earthfill, rockfill and concrete types are given here-below:

Existing Dams: Assessment , evaluation and design of rehabilitation, breach repairs, heightening, improvement and remedial(failures) works covering siltation, safety, evaporation and seepage losses, reservoir operation analysis, bills of quantities and technical specifications.

New Dams: Sites:

- Site selection and storage efficiency studies, construction materials availability, quantity and quality,
- Catchment yield and hydrological analysis
- Reservoir-Depth- Area-Capacity function curves derivation and analysis
- Safe dependable yield model simulations-e.g. water demands-future and ultimate horizons.
- Inflow Design Flood (IDF) and Probable Maximum Flood(PMF)-forecast, estimation and probability analysis, flood routing.
- Drawoff systems design including pump stations and pumps.
- Sedimentation/Siltation control and management (design and post construction provisions)
- Dam safety analysis-earthquake, slope stability, structural and hydraulic failures (Geoslope Software Program)
- Dam Seepage Analysis-Flow Nets, Casgrande Method Analysis, Geoslope Program
- Environmental and social impact balance and mitigation provisions
- Construction works management and administration, FIDIC Contract Documents,Prequalifications, QA/QM, Contract obligations and responsibilities, certifications, disputes &claims, arbitration etc
- Completion tests, commissioning, as-built drawings, operation and maintenance management guide/reference manuals.

He is a Gazetted Qualified Water Resources Consulting Engineer in Kenya: (**Licence No. WD/WRP 001/79-GOK Water Act 2002**) covering, inter alia, small and large dams, water supply and irrigation works.

His practical multidisciplinary expertise(water, sanitation, irrigation and roads, TOT) has been quite invaluable in offering expert services to organisations providing community and development services e.g. : WB (Somalia & Uganda),AfDB (Uganda & Somalia) UN(Kenya, Tanzania & S.Sudan),

CARE(Kenya, Somalia-Somaliland-S.Sudan), Catholic Relief Services(CRS)-(Kenya, Uganda, Rwanda and Burundi), World Vision-(S.Sudan), German Agro Action (GAA)(S.Sudan), Action Aid-Kenya, Pact Inc(Sudan) etc. In the execution of these respective assignments he was personally involved in establishing and defining the training needs and syllabi for the program, project and field officers, partner local NGOs representatives and relevant stakeholders.

He has over the years of his consistent career in private consultancy acquired exemplary skills and techniques on, inter alia, multi-disciplinary team work, organisation and management, interpersonal & communication skills, community sensitisation and motivation.

He has *hands-on and up-to-date* computer expertise and skills (*since 1983*) for the preparation of presentable professional documents and engineering designs and drafting (CADD).

Since the year **1994** he has been an independent private consultant for the clients cited above whom he has served with professional expedition and integrity. He currently runs a registered consultancy firm: **Ms Integrated Partnership-Consultants Ltd (IPCL)** where he is the **MD/ Principal Consultant**.

6. EMPLOYMENT EXPERIENCE RECORD

PERIOD	EMPLOYING ORGANIZATION AND TITLE/POSITION / CONTACT INFORMATION FOR REFERENCES	COUNTRY	SUMMARY OF ACTIVITIES PERFORMED RELEVANT TO THE ASSIGNMENT
2014(Nov)-2015(March)	Employer: Rural Focus Consultants Position: Dam Expert/Reviewer	KENYA	2014 (November) Consultant for the Technical Review of the New Guidelines for the Design, Construction and Rehabilitation of Small Dams and Pans in Kenya (2014)-Swiss Aid for International Development/Rural Focus Consultants.
2014(March)-2015(June)	Employer: GoK-National Irrigation Board Position: Team Leader/Senior Dam Design Engineer	KENYA	2014 (March-on going)-Team Leader and Senior Dam Design Engineer: Feasibility Study, Prelim and Detailed Design, ESIA, Tender Docs for (a) Kebed multi-purpose dam(30m height,2Mm ³ storage,500ha irrigation) for Kenya National Irrigation Board(NIB) .Cost Estimate-Ksh 5 billion(60m USD)
2014(Nov)-2015	Employer: GOK-National Water Conservation and Pipeline Corporation Position: Senior Dam Design Engineer	KENYA	2014 (Nov-on going) Senior Dam Design Engineer- Upper Narok multi-purpose dam(40m height, 10Mm ³ storage,1,000ha irrigation) for Kenya National Water Conservation and Pipeline Corporation(NWCPC)-on-going.Cost Estimate-Kshs 4 billion(50 m USD)
2014(May-November)	Employer: GoK-Ministry of Devolution Position: Team Leader-Panel of Experts/Dam Design and Construction Specialist	KENYA	2014(May-November)-Team Leader/Dam Design Specialist for three Nzoia Basin Multipurpose Dams(irrigation, hydropower, flood mitigation, water supply)-Ugunja-Ugenya Composite Dam-Rockfill &Concrete sections(39m high, 200Mm ³), Dam Site 33B-rockfill(29m high, storage-14.4 Mm ³) Dam Site 40A-rockfill(33m high, storage-4.8Mm ³).Cost Estimate-125m USD.
2014(July-September)	Employer: GoK-Kenya Water Security and Climate Resilience Project Position: Infrastructure Advisor	KENYA	2014(July-September)-Infrastructure advisor for the review of Lower Nzoia Irrigation Project-4,000 ha(Final Design and Tender Documents)-Kenya Water Security and Climate Change Resilience Programme(WB-GoK).Cost Estimate-100m USD

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2014(March-September)	Employer: GoK-Kenya Water Security and Climate Resilience Project Position: Infrastructure Advisor	KENYA	2014(March-September)-Infrastructure advisor for the review of the design of the Multipurpose Mwache Dam in Kwale District, Coast Province Kenya(RCC type)-water supply to Mombasa city(185,000 m ³ per day), 2,000ha pilot irrigation scheme,35MW hydropower production, dam height-80m,storage capacity-118Mm ³ .Kenya Water Security and Climate Change Resilience Programme(WB-GoK).Cost Estimate-200m USD.
2014(March-June)	Employer: Gicheha Farms Ltd Position: Consultant Dams Engineer-Design and Documentation	KENYA	2014(March-June)-Team Leader/Senior Dam Designer for Seven Potential Dam Sites for Gicheha Farms(Ruiru and Taveta)-Embankment Sizes: 6m-30m, Storage capacities 1m-40Mm ³ Cost Estimate 85m USD
2014(July-Dec)	Employer: GoK-Lake Victoria North Water Services Board Position: Dam Expert/Specialist-Team Leader	KENYA	2014(July-Dec)-Team Leader/Dam Design Specialist –Panel of Experts for Dam Safety Evaluation Studies for Kipkarren(23m, storage 1.8Mm ³ storage capacity) and Elligirini (24m, storage1.2 Mm ³ storage capacity) Earthfill Embankment Dams , Eldoret for Lake Victoria North Water Services Board, funded by WB. Cost Estimate (Improvement Works)-Kshs 230m (3m USD).
2012-2013	Employer: SMEC International Pty Ltd Position: Team Leader/Senior Dam Engineer	RWANDA	Feasibility Study, Detailed Design and Tender Documentation of 3 irrigation water Harvesting Dams ,Land Husbandary and Hillside Irrigation Project-for MINAGRI-Rwanda(WB) (1200 Ha)
2012(June-On going)-	Employer: National Water Conservation and Pipeline Corporation(NWCPC) Position: Dam Expert	KENYA	Umaa Earthfill Dam(28m, 1Mm ³ Storage Capacity) <ul style="list-style-type: none"> ▣ Arbitration Consultancy to review the technical designs, tender documents and supervision(FIDIC) management for clients DEFENCE in the arbitration case
2012-2013-	Employer Aberdare Hills Golf Resort Development Project Position: Dam Design Engineer	KENYA	Water Supply Dams(4nos)-2 Concrete Gravity, One Earthfill and One combined earthfill and concrete).Heights 10 to 20 meters

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2011-2012 :	<p>Employer: PACT Sudan</p> <p>Position: Design and Supervision Consultant</p>	S. SUDAN	<p>Water Storage Hafirs (water-pans)-</p> <ul style="list-style-type: none"> ■ 6Nos (Eastern Equatoria and Warrap States) 30,000 to 40,000 m³ capacity for livestock and domestic water supply-designs, tender/contract documents, construction supervision. Solar powered pumps design specs, slow sand water filtration/treatment systems
2012 (March)-	<p>Employer: Kamuzu (Liwonde) Barrage Independent Upgrading Project</p> <p>Employer: SMEC International Pty Ltd</p> <p>Position: Civil and Hydraulics Engineer</p>	MALAWI	<p>(Radial gates, weed collector boom, bridge and roadworks) ESIA-Sub-Consultant Civil Engineer (SMEC International)-WB funded. Review of technical designs, preparation of bills of quantities and cost estimates of the environmental mitigation measures for the proposed upgrading works.</p>
2012(March to September):	<p>Employer: NRM Consultants/Ministry of Regional Dev Authorities</p> <p>Position: Dam Design and Tender Documents</p>	KENYA	<p>Kenya-Arror (Marakwet District) Multipurpose Dam Development Project</p> <ul style="list-style-type: none"> ■ (93 m high rockfill embankment dam with a clay core(Cost 150 m USD)- Dam Body Design Review, geotechnical investigations, preparation of detail design report and drawings, preparation of tender and contract documents and budget cost estimates.
2009 (August-on going):	<p>Employer: Midrock Contractors</p> <p>Position: Consultant and Technical Advisor</p>	KENYA	<p>Contractor for the construction of Badasa Dam in Marsabit Kenya for water supply and irrigation: 60 m high earthfill embankment, storage capacity = 3.5 million m³ Project Cost= Kshs 2.4 billion (300 million USD).</p>
2009(August-Sept)	<p>Employer: Connex Consultants/GoK</p> <p>Position: Dam Design Engineer</p>	KENYA	<p>Feasibility Study and Preliminary Design for Mavoko Town Water Supply and Sanitation Project-Potential water damsites and existing dams-10 sites. Cost Estimate= KShs 600 million (7 million USD)</p>
2009(May-June)	<p>Employer: Cardno International/EU</p> <p>Position: Dams and Hydraulics Engineer</p>	SOMALIA	<p>Prefeasibility Study – Rehabilitation of Jowar Offstream Reservoir for Shabelle River Flood Control and Water Flow/Conservation. Capacity 200 million m³,reservoir area=100km²,desiltation 10 million m³, Cost= 6.5million USD</p>

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2000-2002	<p align="center">Employer: Kilimanjaro Plantations Ltd Position: Consultant-Dams Design and Supervision</p>	TANZANIA	<p>Consultant Water Resources Engineer: <i>Tchibo Estates Ltd: Water Resources and Supply Systems Masterplan Study (CETCO Ltd):</i> 7 new large scale coffee estates-main river intake weirs, canal headworks, open lined and unlined conveyance canals, storage dams, pumping systems. Cost Estimate 500,000 US\$</p>
2001	<p align="center">Employer: Rural Focus Ltd Position: Supervision of Dam Engineering Design and Construction Works</p>	KENYA	<p>Karangaita Farm (26 Ha Floriculture Development)-Nettie Dam-Nanyuki District</p> <p><i>Project component works:</i></p> <p>Dam: 8 M High x 296 M long compacted earthfill embankment (Fill=28,416 m³), water depth=7M, Reservoir Surface Area (FSL)=1.7 Ha, Live Storage= 61,020 m³,</p> <p>River Intake Weir: Source-Likii river – tributary of Ewaso Ngiro North River</p> <p>Conveyance Canal (Irrigation)-3.5 Km Open PCC lined trapezoidal section.</p> <p>Gravity Water Supply System: 3. 5 Km- 90 mm-63 mm Upvc water supply pipelines.</p>
2000-2001:	<p align="center">Employer: Rural Focus Ltd-Consultants Position: Supervision of Dam Engineering Design and Construction Works</p>	KENYA	<p>Kenya-Millennium Dam: Ol Jogi Ranch (Water Conservation-Wildlife&Livestock>10,000 Ha)-Laikipia District</p> <p><i>Project component works:</i></p> <p>Dam: 14 M High x 453.5 M Reservoir Surface Area (FSL)=30.8Ha, Live Storage= 1,306,495m³, Natural Drainage Catchment Basin= 32 Km².</p> <p>Spillway Works- 2 Nos x 35M wide open earth channel: Inflow Design Flood (IDF)= 215m³/s 35m concrete sill weir at control section.</p> <p>River/Source: Ephemeral lagga- tributary of Nanyuki River: 11.5M x 2.8M High Concrete diversion weir.</p> <p>2000-Southern Somalia: Water/Hydraulics Engineer- <i>Food Security Partnership Program (CARE/USAID):</i> Irrigation Systems Study (8 districts) –technical/engineering evaluation of canal systems sluice gates and culverts. Tender/contract documents and cost estimates. Cost Estimate : 10 million US\$</p>

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2000-	<p>Employer: GENESIS NGO/ACTIONAID Position: Water Engineer and Hydraulics Expert</p>	KENYA	<p><i>Yatta B2 Development Project</i> Feasibility Study for a new 60 Km open canal with intake dams, headworks, water security conservation dams (8nos), shallow wells, sand dams/sub-surface dams etc .Water supply to Yatta subdistrict and Mwingi District (3 million people) Cost Estimate: 10 million US\$ Proposed-Preliminary Design- 60 Km Yatta B2 Furrow Source-Irrigation and Domestic Water Supply)-Machakos and Mwingi Districts <i>Mathauta Earthfill Dam</i> <i>Project component works</i></p> <p>Dam: 10M High x 450M long compacted earthfill embankment (Fill=77,000m³), water depth=7.5M, Reservoir Surface Area (FSL)=11.80Ha, Live Storage= 332,500m³.,Natural Drainage Catchment Basin= 27 Km².</p>
2009(February-April)	<p>Employer: Howard Humphreys/Professional Consultants Position: Dam Design Engineer/Expert</p>	KENYA	<p>Machakos Water Supply and Sanitation Project (25 yrs to PY 2030-masterplan)- Dams: Site reconnaissance surveys, field investigations, eng surveys, Feasibility Study(4 sites) Cost Est. =KShs 500 million (6 million USD)</p>
2009(April-May)	<p>Employer: GTZ/GIZ Position: Dam Design Engineer/Expert</p>	SOUTH SUDAN	<p>Design and preparation of technical report and contract documents for Nakrumai Water Pan for Kapoeta Community-Domestic and Livestock Water Supply. Capacity 80,000 m³, People =7,500, cows=5,000, Shoats = 10,000.Cost Est.= 600,000 US\$</p>
2006(July)-	<p>Employer: Kisima Farm Ltd/EU Position: Consultant Dam Engineer</p>	KENYA	<p>Kisima Farm Rumuruti-Dams Expert for the Feasibility Study Report for an earth dam on an ephemeral stream in ASAL including hydrologic analysis and project cost estimates for funding by European Union. Cost Estimate= KShs 27million (400,000 USD)</p>
2005 - 2007	<p>Employer: UNWFP//GTZ Position: Senior Resident Engineer.</p>	SOUTH SUDAN	<p>Nadapal-Narus-Juba Rd (400Km)- <ul style="list-style-type: none"> ▣ Road drainage, earthworks, hydrology, community water pans and shallow wells with hand pumps (community labour-based , Food for Work) </p>

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2002-2003	<p align="center">Employer: Seureca Consultants <i>Position: Water Resources Engineer & Hydrologist-</i></p>	TANZANIA	<p>Urban Sector Rehabilitation Project: Tabora Municipality Water Supply Improvements Project (IDA):</p> <ul style="list-style-type: none"> ▣ Study of the hydrology of Tabora Municipality and environs to establish surface water sources options and potential dam sites. ▣ Detailed reservoir and embankment analysis for the existing dams: Igombe (47 million m³ storage), Kazima (2 million m³) including catchment studies, runoff yields, reservoir simulation, mass curves and dependable 96% probability firm yield, flood risks and forecast. ▣ Preliminary study of potential damsites: Hirigini (10 Mm³) and Wala (20 Mm³) in Wala sub-basin. Cost Estimate: 35 million US\$
2001	<p align="center">Employer: Catholic Relief Services-Uganda Program Position: Water Engineer/Dams Expert-Design and Supervision</p>	UGANDA	<p>Employment Project Northern Uganda (EPNU)-CRS Uganda Program:</p> <ul style="list-style-type: none"> ▣ <i>Evaluation Study</i>-Gulu Community Roads and Kitgum Water Valley Dams-Labour –Based, Food for Works (FFW) model proposals. Dams and shallow wells. Cost Estimate: 2 million US\$
2001	<p align="center">Employer: Cardno Consultants Position: Water Resources Engineer and Hydrologist</p>	UGANDA	<p>Uganda National Livestock Development Project-ADB</p> <ul style="list-style-type: none"> ▣ Preparation Mission, Consultant Water & Dams Engineer-Water supply for livestock in 29 districts of the cattle corridor. Cost Estimate 35 million US\$.
2001	<p align="center">Employer: CARE-Somalia & South Sudan: Position: Consultant Water Resources Engineer:</p>	SOMALILAND	<p>Technical Feasibility Study for Cash for Work Project for Rural Returnees:</p> <ul style="list-style-type: none"> ▣ Hargeisa, Awdal, Galbeed, Togdheer, Sanaag, Sool and Sahil districts (7 districts). Community water supply barkhards, sub-surface sand dams
1999	<p align="center">Employer: Catholic Relief Services(CRS)-Uganda Program Position: Dams Engineer</p>	UGANDA	<p><i>Rural Community Income Generating (IG) Activity Proposal for Northern Uganda-Gulu & Kitgum Districts (CRS Uganda Program)- Proposal for USAID Funding</i></p> <p>Roads, Valley Dams-Labour Based Methods (LBM), Food for Work (FFW) and Cash for Work (CFW) apportionment/mix proportions. Cost Estimate: 2 million US\$</p>

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1998	<p>Employer: Development Research Services(DRS)/IFAD Position: Water Engineer/Irrigation Specialist:</p>	KENYA	<p><i>Eastern Province Horticulture and Traditional Food Crops Development Project (IFAD/GOK)-</i></p> <ul style="list-style-type: none"> ▣ Technical assessment and evaluation of 14 old irrigation schemes (1,475 Ha) –Rehabilitation requirements, constraints, potential, cost estimates and tender documents. Cost Estimate: 15 million US\$
1997	<p>Employer: UNOPS/GoK Position: Water Engineer/Consultant</p>	KENYA	<p><i>Kibirichia, Meru District, Rural Water Supply Systems Assessment and Evaluation Study (UNOPS-GOK)-</i></p> <ul style="list-style-type: none"> ▣ 15 Water Supply Projects/Schemes: River/spring intakes, 20 Km old canal, water pipelines, reservoirs and 3 dams.
1996	<p>Employer: Rural Focus Ltd-Consultants Position: Dam Engineering Design Supervision</p>	KENYA	<p>Kenya-Will Pows Dam: Borana Ranch/Farm (Horticulture/Agricultural=40Ha)-Laikipia District <i>Project component works:</i> Dam: 13.5 M High x 265 M long compacted earthfill embankment. Live Storage= 443,910m³, Dead Storage=22,400m³, Natural Drainage Catchment Basin= 32 Km². Spillway Works- 52 M wide,: Inflow Design Flood (IDF)= 150m³/s(1 in 100 Year Return Flood), 52m concrete ogee weir at control section. River Flood Off-take Weir: Source-Ephemeral Lagga–tributary of Ngare Ndare River: 11.5M x 2.8 M High Concrete diversion weir. Flood Water Conveyance Canal (Irrigation)-2 Km</p>

7. RELEVANT REFERENCE PROJECTS UNDERTAKEN.

REF	PROJECT DETAILS
1	<p>Project Name: Chania Outfall and Thika Dam Hydropower Plants</p> <p>Project Duration: (Year/Month): 2015(January) - 2016(May)</p> <p>Project Location: Kenya - Murang'a County</p> <p>Name of Client: Athi Water Services board (AWSB)</p> <p>Main Description of Project: The scope of services for the assignment include:</p> <ol style="list-style-type: none"> 1. Carry out technical, financial, economic, environmental and social feasibility of the Chania outfall and Thika dam projects 2. Establish the cost of implementing the Chania outfall and Thika dam projects 3. Undertake preliminary and detailed designs of the Chania outfall project; 4. Preparation of bidding documents for Chania Outfall Project. 5. Fulfilling the role of the Engineer's Representative in the supervision of the construction works 6. Supervising, in accordance with the conditions of contract, specifications and drawings, works carried out by the selected contractor while at all times ensuring quality, cost effectiveness and timely completion. <p>Position Held: Team Leader/Senior Dam Design Engineer</p> <p>Detailed Description of Actual Services provided: Consultancy Services for Feasibility Study, Detailed Design and Preparation of Tender Documents for Hydropower Plants at Chania Outfall and Thika Dam, and Preparation of Design and Bidding Document for Chania plant (Phase I) and Supervision and Coordination of Hydroelectric Power Generation Station at Chania outfall</p>
2	<p>Project Name: Upper Narok Dam</p> <p>Project Duration: (Year/Month): 2015 - 2016 (March)</p> <p>Project Location: Kenya – Narok County</p> <p>Name of Client: National Water Conservation and Pipe line Corporation(NWCPC)</p> <p>Main Description of Project: The scope of services for the assignment include:</p> <ol style="list-style-type: none"> 1. Feasibility Study. 2. Detailed topographical survey 3. Detailed hydrological and water management study 4. Detailed geological and geotechnical investigations; 5. Detailed engineering design for the type of dam wall, spillways, hydropower plant, inlet and outlets, diversion and draw down towers; 6. Detailed engineering design for irrigation infrastructure downstream of dam; 7. Environmental and Social Impact Assessment (ESIA) study. 8. Engineering costs estimates and Financial and economic analysis <p>Position Held: Team Leader/Senior Dam Design Engineer</p> <p>Detailed Description of Actual Services provided: Consultancy services to carry out feasibility study, Preliminary And final designs and environmental and social impact assessment for the proposed upper Narok dam in Narok county</p>

REF	PROJECT DETAILS
3	<p>Project Name: Condition survey of Ellegerini and Kipkarren dams Project Duration: (Year/Month): 2014(July)-2014 (Dec)) Project Location: Kenya – Uasin Gishu County Name of Client: National Irrigation Board (NIB) Main Description of Project: The scope of services for the assignment include:</p> <ol style="list-style-type: none"> 1. To conduct the safety evaluation of Ellegerini and Kipkarren dams embankment, spillway, reservoir rim and other appurtenances 2. To conduct stability analysis of the Ellegerini and Kipkarren dams and appurtenant structures 3. To assess the required hydraulic capacity of the spillway based on updated hydrological assessment. 4. To assess the downstream hazards by potential dam failure 5. To recommend required remedial measures to address identified dam safety issues. <p>Position Held: Team Leader-Dam Design and condition Evaluation Expert</p> <p>Detailed Description of Actual Services provided: Consultancy Services for requires review/ assessment of the safety condition and performance of existing Kipkarren and Ellegerini dams.y Dam data: Embankment (zoned) earthfill dam, Height – 45m, Reservoir Storage capacity = 6.5Million M³, Fill material = 1.2Mm³, Cost estimate = Ksh 3 Billion.</p>
4	<p>Project Name: Lessos/Keбен Dam and Irrigation Development Project Duration: (Year/Month): 2014(March)-2015 (June) Project Location: Kenya – Nandi County Name of Client: National Irrigation Board (NIB) Main Description of Project: The scope of services for the assignment include:</p> <ol style="list-style-type: none"> 1. Detailed topographical survey 2. Detailed hydrological and water management study 3. Detailed geological and geotechnical investigations; 4. Detailed engineering design for the type of dam wall, spillways, hydropower plant, inlet and outlets, diversion and draw down towers; 5. Detailed engineering design for irrigation infrastructure downstream of dam; 6. Environmental and Social Impact Assessment (ESIA) study. 7. Engineering costs estimates 8. Financial and economic analysis 9. Construction scheduling <p>Position Held: Team Leader/Senior Dam Design Engineer</p> <p>Detailed Description of Actual Services provided: Consultancy Services for requires review/ assessment of the safety condition and performance of existing Kipkarren and Ellegerini dams. Dam data: Embankment (zoned) earthfill dam, Height – 45m, Reservoir Storage capacity = 6.5Million M³, Fill material = 1.2Mm³, Cost estimate = Ksh 3 Billion.</p>

REF	PROJECT DETAILS
5	<p>Project Name: Feasibility studies and final design preparation of flood control structures(dams) within Nzoia River Basin</p> <p>Project Duration: (Year/Month): June 2014- December 2014</p> <p>Project Location: Middle & Upper Nzoia River Basin; Western, Kenya</p> <p>Name of Client: GoK-Ministry of Ministry of Devolution and Planning State Department of Devolution</p> <p>Main Description of Project: The scope of services for the assignment include:</p> <ol style="list-style-type: none"> 1. Take lead in reviewing the overall design and construction plan of the proposed Nzoia dams including the Ugunja-Ugenya Dam and their safety aspects. 2. Coordinate the reviewing of the Dam's design and stability analysis for normal and extreme loading conditions including determination of seismic loading criteria; 3. Review the strength parameters and characteristics of the proposed construction materials and placement requirements; 4. Review the proposed flood control water management, O&M and Instrumentation Plan; 5. Review and advice the design, costs, and proposed construction procedures of the dam and associated structures; 6. Facilitate discussions among the PoE members and the dam consultant; summarize key findings and recommendations including additional investigations if required. 7. Take lead in preparing the minutes of PoE meeting and client's report in coordination with other PoE members. <p>Position Held: Team Leader-Dam Design and Construction expert (Panel of Experts)-3 large rockfill and composite dams.</p> <p>Position Held: Team Leader/Senior Dam Design Engineer</p> <p>Detailed Description of Actual Services provided: Consultancy Services for Panel of Expert-Review of preliminary and final design of flood control structures(3dams) within Nzoia River Basin</p>
6	<p>Project Name: Aror Multipurpose Dam Development Project on Aror River</p> <p>Project Duration: (Year/Month): March 2013- September-2013</p> <p>Project Location: Elgeyo Marakwet-Kenya(Rift Valley Province)</p> <p>Name of Client: Ministry of Regional Development Authorities (NWCP)</p> <p>Main Description of Project: The consultancy services covers the designs, analysis and documentation of the following elements:</p> <ol style="list-style-type: none"> 1. Embankment(Dam Body) 2. Borrow Fill Materials-Availability and Properties 3. Hydraulic Structures-Diversion Tunnel, Spillway(weir and channels),Stilling Basins 4. Dam Construction Cost Estimates of the selected most feasible options-Impervious Concrete Core Rockfill Dam, Concrete Face Rockfill Dam <p>Position Held: Team Leader/Senior Dam Design Engineer</p> <p>Detailed Description of Actual Services provided: Review of the feasibility Study Report, Preliminary and detailed Engineering design, tender documents for the proposed Aror Dam Multipurpose Development Project. Supervision of Geotechnical site investigations and laboratory Test Analysis Report.</p>

REF	PROJECT DETAILS
7	<p>Project Name: CARE Somaliland Returnees Re-integration Program – Cash for Work Project Project Duration: (Year/Month): Nov/ December 2001- January 2002 Project Location: 5 regions of Somaliland (NW Somalia) Name of Client: CARE Somalia/ S. Sudan Main Description of Project: Construction of small dams, subsurface dams, wells and water storage reservoirs (Berkeds) Technical Feasibility Study report of Project Proposal submitted by local non-governmental organisations and Community Based Organisations (CBO) – 16 Nos Prequalified Position Held: Consultant Civil Engineer Detailed Description of Actual Services provided: Technical Evaluation of Rehabilitation of Pastoral and Agricultural Infrastructure proposals from 16 Ingos-Shallow Hand Dug Water Wells(>20), Boreholes, Water Storage Pans, Domestic Water Security Storage Underground Reservoirs (Barkads, >20), Smallholder irrigation Systems –canals, intakes etc</p>
8	<p>Project Name: Tchibo Coffee Estates Water Development Project Project Duration: (Year/Month): April/ May 2001- On-going (2002) Project Location: Moshi District-Tanzania Name of Client: Tchibo Estates Ltd Main Description of Project: Preparation of Water Development Masterplan project. Design and Construction Supervision and Quality Assurance for construction of sources, conveyance, storage dams and distribution systems for 7 large coffee estates (plantations) Position Held: Project Manager / Water Resources Consultant Detailed Description of Actual Services provided: Preparation of overall water development master plan for 7 large coffee estates (2,000 Acres) covering water sources, conveyance and storage dams. 3 main river intake weirs and main conveyance canals and pipelines. Feasibility study of several potential dam sites</p>
9	<p>Project Name: Kenya Eastern Produce (EPK) Water Development Project Project Duration: (Year/Month): 1996-1998; Part time (2002) Project Location: Nandi Hills District Name of Client: Eastern Produce (Kenya) (EPK) Main Description of Project: Technical evaluation studies for earth dams, concrete dams, river flows, springs and storage tanks for six larger tea plantation estates in nandi hills owned by eastern province kenya ltd (kakuzi group) Position Held: Consultant Water Resources Engineer Detailed Description of Actual Services provided: Surveys, field investigations for the assessment of water storage potential of dam sites in six tea estates, water demand/ supply analysis reports. Use of water hydram pumping systems. preparation of engineer's cost estimates and implementation of development plans</p>

REF	PROJECT DETAILS
10	<p>Project Name: CRS Rwanda (2003 and 2004) & Burundi Irrigation Development Projects</p> <p>Project Duration: (Year/Month): 1988 - 1999</p> <p>Project Location: Butare District-Rwanda; Kirundo District-Burundi</p> <p>Name of Client: CRS RWANDA & BURUNDI PROGRAMS</p> <p>Main Description of Project: Technical assessment and evaluation studies for Rumakangoma (150Ha) & Muhembuzi (45Ha) marais irrigation projects involving 25 Km of irrigation canals and two major tributaries and hydraulic/ irrigation structures.</p> <p>Position Held: Consultant Water Resources Engineer</p> <p>Detailed Description of Actual Services provided: He checked all the survey and engineering scheme drawings, specifications and cost estimates. He also developed model type designs and manuals for use by the client in the development of other subsequent irrigation projects. He carried out extensive field flow measurements and also trained clients' field officers on field techniques and hydrologic data collection and analysis. He prepared a hydrologic monitoring plan for the Muhembuzi irrigation project (Burundi) including a complete field weather station specifications and layout plan design.</p>
11	<p>Project Name: CRS Rwanda (2003 and 2004) & Burundi Irrigation Development Projects</p> <p>Project Duration: (Year/Month): 1988 - 1999</p> <p>Project Location: Butare District-Rwanda; Kirundo District-Burundi</p> <p>Name of Client: CRS RWANDA & BURUNDI PROGRAMS</p> <p>Main Description of Project: Technical assessment and evaluation studies for Rumakangoma (150Ha) & Muhembuzi (45Ha) marais irrigation projects involving 25 Km of irrigation canals and two major tributaries and hydraulic/ irrigation structures.</p> <p>Position Held: Consultant Water Resources Engineer</p> <p>Detailed Description of Actual Services provided: He checked all the survey and engineering scheme drawings, specifications and cost estimates. He also developed model type designs and manuals for use by the client in the development of other subsequent irrigation projects. He carried out extensive field flow measurements and also trained clients' field officers on field techniques and hydrologic data collection and analysis. He prepared a hydrologic monitoring plan for the Muhembuzi irrigation project (Burundi) including a complete field weather station specifications and layout plan design.</p>

REF	PROJECT DETAILS
12	<p>Project Name: Kibo Estate Tz.: Water Supply Development-Dams and Main WS Furrow</p> <p>Project Duration: (Year/Month): 2004 - 2005</p> <p>Project Location: Machame – Moshi – Tanzania</p> <p>Name of Client: Tudeley Estates Tanzania</p> <p>Main Description of Project: Engineering surveys, designs, specifications and Tender Documents for three (3) earth fill dams and 6 Km main water supply furrow.</p> <p>Position Held: – Project Manager / Consultant - Engineering Topographical Surveyor</p> <p>Detailed Description of Actual Services provided: He was the team leader and chief engineer for the overall project planning and development.</p> <p>He carried out field flow measurements and evaluation of the main canal status and its main river intake weir and geotechnical site investigations.</p> <p>He carried out Feasibility and Preliminary Design and cost Estimates for 3 selected water dam storage sites.</p>
13	<p>Project Name: Burka Water Resource Development and Management</p> <p>Project Duration: (Year/Month): 2000- 2002</p> <p>Project Location: Arusha Region – Tanzania</p> <p>Name of Client: Burka Coffee Estates Ltd.</p> <p>Main Description of Project: The project involved surveys, designs and construction supervision of:-</p> <ul style="list-style-type: none"> ▣ Water sources (spring) - Protection and development of storage Dam ▣ Main conveyance canals (10 Km) rehabilitation works ▣ Main water pump stations (3 Nos.) ▣ 2 Km of 250 - 110 mm dia water mains and sub-mains for sprinkler irrigation system for 84 Ha new coffee farm including 30 sprinklers ▣ Gravity and pumped sprinkler system for 15 Ha new coffee farm <p>Position Held: – - Irrigation and Water/Dam Engineer</p> <p>Detailed Description of Actual Services provided: He was the overall consultant for irrigation water supply and dams for various coffee farms within the management of Burka Coffee Estates Ltd.</p>

8. CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this biodata correctly describe myself, my professional qualifications and experience.

Signature

Date (Day/Month/Year)

Full Name: Japhet Kaburu RUTERE