

BILL OF QUANTITIES					
SEKELENI-NDOVOINI BH WATER DISTRIBUTION & LIVELIHOOD PROJECT					
BILL 1.0 PRELIMINARIES AND GENERAL ITEMS					
S/No	Item description	Unit	QTY	RATE	Amount Ksh
	Publicity Sign Board				
1.0.1	Allow for a project signboard to be installed at a convenient site to be maintained through out the project period, as directed by the Project Manager.	No	1		
	Butt fusion (Rate per Joint)				
1.0.2	Butt fusion of HDPE Pipelines	LS	1		
	Mark Post				
1.0.3	Supply and Install Assorted Mark Posts as shall be instructed by the Engineer	No	15		
	TOTAL FOR PRELIMINARY AND GENERAL ITEMS				
BILL 2.0 SOLAR PUMPING SYSTEM					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.0.1	Supply, Deliver and Install a Submersible Multistage Centrifugal Pump wet end of Duty Point: - 12.0m ³ /hr at a Total Head of 180meters, DS 8/44 or approved equivalent. The pump Efficiency at duty point should be above 65%. The pump Impellers should be of Stainless Steel. Provide Copies of Pump Characteristic/Performance Curves (Brochures). Install as directed by the Supervising Engineer	No.	1		
2.0.2	Supply, deliver and install a 3 phase sub motor compatible with the item above complete with PD sacrificial anode as shall be agreed	No.	1		
2.0.3	Supply, Deliver and Install on the steel tower, Solar Array System of Total Output 11.9KW, including high efficiency Tier 1 Modules as 700W RENE PV or approved equivalent in 1 String of 17 Panels each with a maximum string voltage VOC 850 VDC, Vmmp 500-700 V as approved using 4mm sq dc cable and MC4 terminated on both sides to be mounted on the structure.	W	11900		
2.0.4	Supply, Deliver and Install an AC Solar Pump Control Module, incorporating: - detachable control interface; settable min/max frequency & open circuit voltage; display of operating parameters, including frequency, voltage, amperage, input power & pump speed; display of historical data, including energy generation, maximum power & operating times; protection against over/under voltage, over current, system overload & module over temperature; fault detection with error code display.	Unit	1		

2.0.5	Supply, deliver and erect firmly on Concrete Anchors, Fabricated Steel Tower, use square tubes, 4" x 4" x 4mm, for solar Array System, minimum height 5 meters, solar controller box 1000mm by 500mm by 300mm well ventilated to be included and tower inclination angle 10-15 degrees. To be installed as directed by the supervising Engineer	NO	1		
2.0.6	Supply and install DC enclosure complete with inline 1100VDC fused isolator	No.	2		
2.0.7	Supply install, test and commission 4mm PV Cable Single Core 1000VDC Tinnd Copper ; Insulation: XLPO ; Insulation Color: Red and black	M	60		
2.0.8	Supply and lay Armored Cable, 6mm ² X 4 core	M	30		
2.0.9	Allow for system earthing, lightening arrestor and balance of system	Lot	1		
2.0.10	Submersible Cable, Double Insulated, 4mm ² X 4core	M	186		
2.0.11	Sensor Cable, 2Core, Double Insulated, Londex	M	206		
2.0.12	Starter pipe, Upvc, 3" Ø	No	1		
2.0.13	Adaptor Set, 3"Ø	Set	1		
2.0.14	UPVC Pipes, 2" Ø X 3m, Supper HD 38 bar	No.	63		
2.0.15	Electrodes, approved	No.	2		
2.0.16	Splicing Kit, Large Packet	No.	1		
2.0.17	Cable Ties, Large Packet, Manila	No.	1		
2.0.18	Insulating Tapes, Large	No.	10		
2.0.19	PV Disconnect Switch 63Amps	No.	1		
2.0.20	Flanged 80mm Bulk water master meter, Wesan or equivalent approved	No.	1		
2.0.21	Borehole cover, 152x80mm	No.	1		
2.0.22	80mm Flanged non return valve	No.	1		
2.0.23	80mm Borehole end sundries as shall be instructed	Item	1		
2.0.24	Construct a standard Borehole Chamber 1.2m x 1.2m x 1m complete with a double opening steel manhole cover, painted as shall be instructed	Item	1		
	Sub Total			KSH.	
BILL 3.0	Fencing of the pumping station				
NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.0.1	Excavate in normal soil for holes 300mm diameter, 600mm deep. Load and spread in site surplus materials.	Item	38		
3.0.2	2500mmx125mmx125 concrete posts spaced at 3000mm centres cranked at top 600mm	No	38		
3.0.3	Ditto but 2100mm x 125x125mm support post.	No	4		
3.0.4	Mass concrete (1:3:6) surround to posts underground and for chainlink reinstatement to ground surface	cm	3		
3.0.5	Gauge 12.5 barbed wire in (6) seven strands with matching staples.	Lm	420		
3.0.6	2.1m highx14 gauge chainlink, bound on barbed wire	Lm	80		
3.0.7	<u>STEEL GATES</u>				

3.0.8	Supply and fix purpose made double steel gate overall size 3000x2100mm high in two equal openable parts hanged on 100x100x5mm, 2100 high SHS pillars and comprising of 30x30x30mm thick SHS at 200mm C/C, c/w pedestral gate overall size 900x2100mm and moulded vertical spikes at top with and including fixing, hanging, opening and locking accessories. Rate inclusive of application of one undercoat and two finishing coat of gloss oil paint (blue)	No	1		
	Sub Total				
BILL 4.0	CONSTRUCTION OF SEKELENI MBUI NZAU RISING MAIN				
S/No	Item description	Unit	QTY	RATE	Amount Ksh
4.0.1	Bush clear and excavate to pipe invert level 800 mm n.e 1m below existing ground level and backfill/ reinstate to original ground level after testing pipeline, all to the approval of the engineer	m	2700		
4.0.2	Excavate for 450mm wide x 800mm deep channel at road crossings and stockpile soil material for reuse. Prepare channel bed for pipe laying	M	24		
4.0.3	75mm dia. GS pipe class B (with sockets on one end). Provide for connection with the HDPE pipe	M	48		
4.0.4	Supply, deliver, fit and test 90mm (3") diameter HDPE pipe PN 20 manufactured under ISO 4427 standards using virgin PE100 material (Smooth Wall), fully printed with technical details.	m	800		
4.0.5	Supply, deliver, fit and test 75mm (2.5") diameter HDPE pipe PN 16 manufactured under ISO 4427 standards using virgin PE100 material (Smooth Wall), fully printed with technical details.	m	1300		
4.0.6	Supply, deliver, fit and test 75mm (2.5") diameter HDPE pipe PN 12 manufactured under ISO 4427 standards using virgin PE100 material (Smooth Wall), fully printed with technical details.	m	600		
4.0.7	Allow for geophysical positioning of pipeline and structures in the presence of clients appointed personel	Item	1	50,000	50,000.00
	Supply and fit the following pipe fittings into the pipeline as directed				
4.0.8	HDPE Gate Valve 2.5" diameter	No	2		
4.0.9	Supply, deliver and install pressure relief valves 2" diameter fitted into 2.5" pipeline with all accessories	No	2		
4.0.10	Supply, deliver and install Double orifice air valve 2" diameter fitted into 2.5" pipeline with all accessories	No	4		
4.0.11	Construct 1.0m x 1.0m x 0.75m (deep internal dimensions) brick walled chambers with RC Cover and locking devices in specified areas by the supervising engineer as per the provided drawing	No	6		
	SUB TOTAL				
Bill 5.0	Installation of Mbuyi Nzau Main Water Storage				
S/No	Item description	Unit	Qty	Rate	Amount
5.0.1	Supply, install/fit and test 2No. 10m ³ double insulated plastic tank; Kentainer or approved equivalent.	Item	2		

5.0.2	Ditto interconnection of all tanks using 3" GI pipes to form a unit water storage and Delivery Pipe	Item	1		
5.0.3	Construct a standard 0.5m high RC masonry platform for the tanks and as directed by the Engineer	Item	1		
	TOTAL				
BILL 6.0 SEKELENI SCHOOL CONNECTION AND BH POINT SOURCE					
S/No	Item description	Unit	QTY	RATE	Amount Ksh
	Construct pipelines to deliver water into existing storage tanks branching off the Main Rising Main after NRV C/W Control Valves as shall be directed by the Engineer				
6.0.1	Bush clear and excavate to pipe invert level 800 mm n.e 1m below existing ground level and backfill/ reinstate to original ground level after testing pipeline, all to the approval of the engineer	m	200		
6.0.2	Excavate for 450mm wide x 800mm deep channel at road crossings and stockpile soil material for reuse. Prepare channel bed for pipe laying	M	12		
6.0.3	50mm dia. GS pipe class B (with sockets on one end). Provide for connection with the HDPE pipe	M	12		
6.0.4	Supply, deliver, fit and test 63mm (2") diameter HDPE pipe PN 10 manufactured under ISO 4427 standards using virgin PE90 material (Smooth Wall), fully printed with technical details.	m	200		
	Supply and fit the following pipe fittings into the pipeline as directed				
6.0.5	HDPE Gate Valve 2" diameter	No	1		
6.0.6	Supply, deliver and install pressure relief valves 2" diameter fitted into 2.5" pipeline with all accessories	No	1		
BH Point Communal Water Point					
	Supply materials and provide personnel to construct a tank base platform 1.2 m high to hold a 10 m ³ plastic water tank at BH site (as in the attached drawing)				
6.0.7	Cut the spoil upto 200mm below G.L over tank base and remove all vegetable soil to temporary spoil heap.	M ³	1.5		
6.0.8	Excavate foundation from stripped level over the tank site to depth n.e. 0.6m deep 300 mm wide and dispose soil as directed	M ²	10		
6.0.9	Mass concrete mix 1:4:8: in 50mm thick blinding to hardcore	M ³	0.4		
6.0.10	225mm thick dressed quarry stone walling	M ²	26		
6.0.11	Provided handle, cut, bend and fix 8 mm deformed steel bars on all alternate course of the wall	Kgs	28		
6.0.12	Damp proof course	m	9.5		
6.0.13	Provide, pack and compact hardcore in 250 mm layers to fill the tank platform	M ³	9		
6.0.14	Provided handle, cut, bend and fix 8 mm deformed steel bars on top slab	Kgs	18.96		
6.0.15	Vibrated reinforced concrete mix 1:2:4 in 100 mm thick for slab	M ³	1		
6.0.16	EXTERNAL PLASTER - 20mm thick 1:2 cement sand to exterior face of tank wall	m ²	10		

6.0.17	Supply, Deliver & Install a 10 m ³ Double Laminated Plastic Water Tank, c/w G.I 2" dia. Inlet, Outlet & Overflow Pipes. To be mounted on 1.2 m high masonry tank platform	No.	1		
6.0.18	Allow for construction of standard water point c/w gI fittings, water meter, gate valves, lockable 0.75m x 0.75m Masonry Chamber and 2 No. Water Taps 3/4" as instructed by supervising engineer	Item	1		
	SUB TOTAL				
BILL 7.0	CONSTRUCTION OF SUPPLY GRAVITY MAIN				
S/No	Item description	Unit	QTY	RATE	Amount Ksh
7.0.1	Bush clear and excavate to pipe invert level 800 mm n.e 1m below existing ground level and backfill/ reinstate to original ground level after testing pipeline, all to the approval of the engineer	m	300		
7.0.2	Excavate for 450mm wide x 800mm deep channel at road crossings and stockpile soil material for reuse. Prepare channel bed for pipe laying	M	12		
7.0.3	75mm dia. GS pipe class B (with sockets on one end). Provide for connection with the HDPE pipe	M	12		
7.0.4	Supply, deliver, fit and test 75mm (2.5") diameter HDPE pipe PN 12 manufactured under ISO 4427 standards using virgin PE100 material (Smooth Wall), fully printed with technical details.	m	300		
	Supply and fit the following pipe fittings into the pipeline as directed				
7.0.5	HDPE Gate Valve 3" diameter	No	1		
7.0.6	HDPE Gate Valve 2" diameter	No	1		
7.0.7	Supply, deliver and install pressure relief valves 2" diameter fitted into 2.5" pipeline with all accessories	No	1		
7.0.8	Supply, deliver and install Double orifice air valve 2" diameter fitted into 2.5" pipeline with all accessories	No	1		
7.0.9	Construct 1.0m x 1.0m x 0.75m (deep internal dimensions) brick walled chambers with RC Cover and locking devices in specified areas by the supervising engineer as per the provided drawing	No	2		
	Mbui Nzau Communal Water Point and Cattle Trough				
	Supply materials and provide personnel to construct a tank base platform 1.2 m high to hold a 10 m ³ plastic water tank at Mbui Nzau Water Point (as in the attached drawing)				
7.0.10	Cut the spoil upto 200mm below G.L over tank base and remove all vegetable soil to temporary spoil heap.	M ³	1.5		
7.0.11	Excavate foundation from stripped level over the tank site to depth n.e. 0.6m deep 300 mm wide and dispose soil as directed	M ²	10		
7.0.12	Mass concrete mix 1:4:8: in 50mm thick blinding to hardcore	M ³	0.4		
7.0.13	225mm thick dressed quarry stone walling	M ²	26		


7.0.14	Provided handle, cut, bend and fix 8 mm deformed steel bars on all alternate course of the wall	Kgs	28		
7.0.15	Damp proof course	m	9.5		
7.0.16	Provide, pack and compact hardcore in 250 mm layers to fill the tank platform	M ³	9		
7.0.17	Provided handle, cut, bend and fix 8 mm deformed steel bars on top slab	Kgs	19		
7.0.18	Vibrated reinforced concrete mix 1:2:4 in 100 mm thick for slab	M ³	1		
7.0.19	EXTERNAL PLASTER - 20mm thick 1:2 cement sand to exterior face of tank wall	m ²	10		
7.0.20	Supply, Deliver & Install a 10 m ³ Double Laminated Plastic Water Tank, c/w G.I 1.5" dia. Inlet, Outlet & Overflow Pipes. To be mounted on 1.2 m high masonry tank platform	No.	1		
7.0.21	Allow for construction of standard water point c/w gI fittings, water meter, gate valves, lockable 0.75m x 0.75m Massonry Chamber and 2 No. Water Taps 3/4" as instructed by supervising engineer	Item	1		
	ANIMAL TROUGH				
7.0.22	Provide materials and construct 5mx1mx0.35m animal trough as per the provided drawing	L/ Sum	1		
	SUB TOTAL				

BILL 8.0 AGRICULTURE COMPONENT - NGUUMO WARD

Item	Description	Unit	Qty	Rate (Ksh)	Amount (Kshs)
8.0.1	Supply and Deliver Large Conical bags (120 seedlings capacity) of 6 polythene layers sheets of gauge 1mm, Bottom one with 4.71M diameter and the last apex layer/sheet of 30cm, All Sheets of 20cm Width/height pinned and screwed with 2inch long screws as shall be instructed by the Agriculture Officer	No.	24		
8.0.2	Supply and deliver heavy duty seedling trays (germination trays) of 160 cells (holes)	No.	28		
8.0.3	Supply and deliver of Kales Seeds (hybrid) - 100 grammes as shall be directed by the project manager (Satchets	2		
8.0.4	Supply and deliver of Spinanch Seeds (hybrid) - 100 grammes as shall be directed by the project manager	Satchets	2		
8.0.5	Supply and deliver of Coriander (<i>Dania</i>) Seeds - 100 grammes (Local) as shall be directed by the project	Satchets	5		
APICULTURE PROJECT					
I Bee House Construction					
	Excavation for post holes (600mm deep)	No	12		
8.0.6	Concrete for post footings (1:3:6)	m3	0.5		
8.0.7	Treated timber posts 100x100mm	No	12		
8.0.8	Treated timber beams 75x100mm	m	30		
8.0.9	Treated timber rafters 50x75mm	m	40		
8.0.10	Timber wall rails and bracing	m	25		
8.0.11	Mabati roofing sheets (Gauge 28, 3m)	No	10		
8.0.12	Ridge cap	No	2		

8.0.13	Roofing nails & accessories	Sum	1		
8.0.14	Timber hive stands (5 hives per stand)	No	4		
8.0.15	Ant-proof metal / grease cups	No	16		
8.0.16	Chicken wire / welded mesh	m2	20		
8.0.17	Timber framed door	No	1		
8.0.18	Hinges & padlock	Set	1		
8.0.19	Wood preservative / paint	Ltr	10		
8.0.20	Termite control treatment	Sum	1		
8.0.21	Skilled labour (carpenter)	Day	5		
8.0.22	Unskilled labour	Day	6		
II BEE EQUIPMENT AND INSTALLATION BUDGET (Apiary Installation)					
8.0.23	Supply and delivery of Material: Kiln-dried softwood or hardwood (e.g. cypress, pine, or traditional trees). Hive body dimensions (approx.): - Brood chamber: 50 cm (L) × 43 cm (W) × 24 cm (H) - Super chamber: 50 cm (L) × 43 cm (W) × 17 cm (H) Frame size: 48.3 cm (top bar) × 44.8 cm (side bar) × 23.2 cm (height for brood) Frame type: Movable, wired, with foundation wax support. Top cover: Weatherproof, galvanized iron sheet cover. Bottom board: Ventilated, detachable for cleaning. Entrance size: 1.2 cm (H) × 22 cm (W), adjustable. Coating: Non-toxic paint or varnish (exterior only).	Nos	12		
8.0.24	Supply and delivery of complete Protective wear with gloves(Soft leather) and gumboots (Rubber or PVC).The suit should be made from heavy cotton, poly-cotton, or ventilated mesh fabric, in light colors (white, beige, or khaki) to reduce bee aggression. Designed as a loose-fitting, one-piece suit with a front zipper, elastic cuffs at wrists and ankles, and a detachable round or fencing-style veil with fine mesh for clear visibility. Reinforced with double stitching at stress points for durability and sting prevention.	Pcs	2		
8.0.25	Supply and delivery of wide, flat bee brush made with a wooden or high-impact plastic handle, fitted with soft natural (horsehair) or nylon bristles. It measures 35–45 cm in overall length, with 5–7 cm bristles designed for gentle sweeping of bees.	Pcs	2		
8.0.26	Supply and delivery of a bee smoker made of stainless steel or galvanized iron, 25–28 cm high and 10–12 cm in diameter. It has a leather or synthetic bellows with metal hinges, a conical heat-resistant nozzle, and a protective heat shield. The removable fuel chamber, with air holes, uses fuels like dried grass, sawdust, corn cobs, or cardboard	Pcs	2		

8.0.27	Supply and delivery of a hive tool made of tempered stainless or carbon steel, measuring 20–25 cm long and 3–4 mm thick. It features a flat beveled end for prying frames, a curved or hooked end for lifting frames, and a scraper edge for removing propolis and wax. The tool has a polished, corrosion-resistant finish, with an optional plastic or rubber handle for improved comfort.	Pcs	2		
8.0.28	Supply, delivery and install durable hive stands made of metal (preferably galvanized steel), 60 cm high, and sized to fit the hive—typically 40–50 cm wide and 50–60 cm long for a standard Langstroth hive.	Nos	15		
8.0.29	Supply and delivery of manual metallic honey extractor made of stainless or food-grade galvanized steel, holding 2–4 frames. It features a hand-crank gear mechanism, removable frame basket for standard frames, a honey tap for controlled flow, a polished corrosion-resistant finish, and a stable base with a protective cover.	Unit	1		
SUB TOTAL - AGRICULTURAL COMPONENT					

GRAND SUMMARY					
Bill 1.0	Preliminaries and General Items				
Bill 2.0	Solar Pumping System				
Bill 3.0	Fencing of the pumping station				
Bill 4.0	Construction of Sekeleni Mbui Nzau Rising				
Bill 5.0	Installation of Mbui Nzau Main Water Storage				
Bill 6.0	Old Nguumo Market, Dispensary and Sekeleni School Connection				
Bill 7.0	Construction of Supply Gravity Main, Mbui Nzau CWP and Cattle Water Trough				
Bill 8.0	Agriculture Component				
SUB TOTAL					
Contingencies					
Bill 9.0	Allow a provisional sum of Kshs. 76,000 for contingencies to be expended at the discretion of the project manager				76,000.00
SUB TOTAL I					
Add 0.03% PPRA Levy before Tax					
SUB TOTAL II					
Add 16% VAT					
GRAND TOTAL (CONTRACTUAL)					