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Training Organisation Guide (ToG)

for

TVET CERTIFICATE IV in WATER AND IRRIGATION TECHNOLOGY

Year 2023

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Part 1: Pedagogical organisation

1. Presentation of the training programme

1.1. The qualification

This qualification prepares individuals to integrate the modern agriculture and Food processing industry with the professionalization of water and irrigation . This qualification again offers the opportunity to execute the works as A surface irrigation system operator; A sprinkler irrigation system operator; A drip irrigation system operator and Irrigation water pump operator while ensuring that safety, security and environmental regulations are respected.. The individuals with this qualification can enter the TVET Certificate V in Water and irrigation technology in order to be equipped with the necessary competences.

1.2. Minimum Entry requirements

The minimum entry requirement to this qualification is to have successfully completed TVET Certificate III in Water and Irrigation technology or its equivalent.

2. The training programme

2.1 Information about competencies

No	Code	Complementary competencies	Credit
1	**CCMBC402**	**Develop a business plan**	3
2	**CCMCL402**	**Apply computer skills**	3
3	**CCMCT401**	**Citizenship**	3
4	**CCMEN402**	**Use intermediate English at workplace**	3
5	**CCMKN402**	**Gukoresha Ikinyarwanda cy'umunyamwuga**	3

6	**CCMFT402**	**Exprimer des opinions en français élémentaire**	3
Total			18

No	Co-Curricular activities	Credit
1	**Sports/Clubs**	1
2	**Self-study/Library Research**	1
Total		2

	No	Code	Core competencies	Credit
GENERAL	**1.**	**GENFA402**	Apply Fundamental Mathematical Analysis	6
	2.	**GENAB402**	Demonstrate knowledge of General Biology	3
	3.	**GENAC402**	Demonstrate knowledge of Organic Chemistry	3
	4.	**GENMP402**	Apply mechanics and properties of matter	4
	5.	**WIRHP401**	Apply basic knowledge of hydrology principles	4
SPECIFIC	**6.**	**WIRES401**	Establish surface irrigation system	10
	7.	**WIRPD401**	Implement the plan of drip irrigation schedule	8
	8.	**WIRID401**	Install drip irrigation system	7
	9.	**WIRIS401**	Install sprinkler irrigation system	8

	10.	**WIROD401**	Operate drip irrigation system	6
	11.	**WIROS401**	Operate sprinkler irrigation system	7
	12.	**WIRPC401**	Participate in irrigation community mobilization	5
	13.	**WIRCD401**	Construct surface drainage infrastructures	9
	14.	**WIRIA402**	Integrate the workplace	20
	Total			100

3. Human resources

3.1. Trainers' qualifications and competences (Trainers' profile)

No.	Modules	Qualification	Field or training (conferences, workshops, seminars) experience	Technical teaching experience	Languages skill	ICT skills.

1.	**Apply basic knowledge of hydrology principles**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
2.	**Establish surface irrigation system**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in Irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
3.	**Implement the plan of drip irrigation schedule**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration

		To be a holder of Advanced diploma in Irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
4.	**Install drip irrigation system**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in Irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
5.	**Install sprinkler irrigation system**	To be a holder of Bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year of working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in Irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration

6	**Operate sprinkler irrigation system**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in Irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
7	**Participate in irrigation community mobilization**	To be a holder of bachelor's degree in Horticulture, Agriculture, Agricultural sciences Crop sciences or Crop production, Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in Horticulture, Agriculture, crop production, irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration

8	**Construct surface drainage infrastructures**	To be a holder of bachelor's degree in Irrigation and Drainage, Water Engineering, Soil and Water Management	1 year working experience in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration
		To be a holder of Advanced diploma in irrigation and drainage	3 years working experiences in industry	Training on pedagogy (CBT&CBA) or training in field	Fluent in English; French is an added advantage	Microsoft word Microsoft excel Microsoft power point Internet exploration

Part 2: Material organisation

1. Material Resources

1.1. Category 1: Machines, Equipment, Tools and accessories

Items	Technical specifications	Unit cost	Type of room/application area
1. Pumps and Engine	Petrol Engine, suction lift 6-8 meters, Connection Size 2 ", 50m Head, Q=18m3/hr	250,000	Field/site

	Petrol Engine, Suction lift 6-8 Mtrs, Connection Size: 1.5", TDH= 20m, Q= 12m3/hr	175,000	Field/site
	Petrol Engine (KOSHIN) , suction lift 7-8m, Connection Size 2", Q= 37.2 m3/h @ TDH 27m	270,000	Field/site
	Petrol Engine (KOSHIN), suction lift 7-8m, Connection Size: 3", Q= 63m3/h @ TDH 27m	300,000	Field/site
	Petrol Engine (DAYLIFF), suction lift 7-8m, Connection Size: 2", Q= 30m3/h, TDH= 50m	330,000	Field/site
Diesel water pump	Diesel Engine, suction lift 6- 8 m, 3 ",TDH= 50m, Q= 23m3/h	400,000	Field/site
	Diesel Engine, suction lift 6- 8 m, 2 ", TDH= 50m, Q= 28m3/h	351,000	Field/site
	Diesel Engine, suction lift 6- 8 m, 3 ", TDH= 22m, Q= 45m3/h	263,250	Field/site
	Diesel Engine, suction lift 6- 8 m, 2 ",TDH= 25m, Q= 30m3/h	340,000	Field/site
Suction pipes	5 m Flexible suction Pipe (2") with inside wire	32,000	Field/site
	10 m Flexible suction Pipe (4") with inside wire	150,000	Field/site
Hand pump or treadle pump	Treadle pump complete with 3m lens suction pipe (32mm dia.) and foot valve Discharge 4000 liters/hr. @TDH 13m; suction lift 5-7m and delivery pipe of at least 15 m	180,000	Field/site

Solar pump	DC submersible pump + Solar panels + Accessories:Max Head: 50m, Max Flow: 3m3/h, Outlet: 25 mm, Current: 25 A, Power: 600 W, Voltage: DC 24 V	3,600,000	Field/site
	DC submersible pump + Solar panels + Accessories: Max Head: 10m, Max Flow: 6m3/h, Outlet: 32 mm, Current: 10 A, Power: 120 W, Voltage: DC 12 V	810,000	Field/site
Electric Pump	Electric Pump,TDH: 250 m, Q=10m3/s, 30KW	18,900,000	Field/site
	Electric Pump,TDH: 250 m, Q=30m3/s, 40KW	26,550,000	Field/site
Borehole Electric pumps	Pump,Q= 2.4m3/h, TDH: 234 m, 1.5 KW	3,600,000	Field/site
	Pump,Q= 3m3/h, TDH: 139 m, 1.1 KW	2,700,000	Field/site
Flexible Pipes	Layflat Pipe/Hose Pipe, 50 m, 4 inch, delivery pipe	80,000	Field/site
	Layflat Pipe/Hose Pipe, 100 m, 4 inch, delivery pipe	150,000	Field/site
	Layflat Pipe/Hose Pipe, 100 m, 3 inch, delivery pipe	130,000	Field/site
	Layflat Pipe/Hose Pipe, 50m, 2 inch, delivery pipe	55,000	Field/site
	Layflat Pipe/Hose Pipe, 100m, 2 inch, delivery pipe	110,000	Field/site
	Layflat Pipe/Hose Pipe, 50m, 1.5 inch, delivery pipe	40,000	Field/site
	Layflat Pipe/Hose Pipe, 100m, 1.5 inch, delivery pipe	80,000	Field/site

	Horse pipes High Pressure resisting PN10, Quick Coupling 2 inch, easily connected to Rain guns, (30 m Length)	75,000	Field/site
	Horse pipes High Pressure resisting PN8, Quick Coupling 2 inch, easily connected to Rain guns, (30 m Length) Quick Coupling 3 inch, easily connected to the houses	60,000	Field/site
	Outlet Hosepipe, (20 mm). 10 bar pressure by 1 Mtr	1,000	Field/site
	Outlet Hosepipe, (40 mm). 6 bar pressure by 1 Mtr	2,500	Field/site
	Outlet Hosepipe, (25 mm). 10 bar pressure by 1 Mtr	1,500	Field/site
Dam sheets	Dam sheets 250m2, The Tensile strength: ≥300N/MM²,The Tear strength: ≥18/MM²;The Elongation at break: ≥ 394%; The Shrinkage: ≥ 0.04%; The bursting strength: ≥ 30 DAN/CM², The UV treatment: 100%; The Recyclable: 100%; The Thickness: 0.9-1.0MM (One millimeter), made of HDPE Material	900,000	Field/site
	Dam sheets 120m2, The Tensile strength: ≥300N/MM²,The Tear strength: ≥18/MM²;The Elongation at break: ≥ 394%; The Shrinkage: ≥ 0.04%; The bursting strength: ≥ 30 DAN/CM², The UV treatment: 100%; The Recyclable: 100%; The Thickness: 0.9-1.0MM (One millimeter), made of HDPE Material	700,000	Field/site
Water Tank	2,500L Tank, Plastic Polyethylene	189,000	Field/site
	5000L Tank, Plastic Polyethylene	400,000	Field/site

1.2. Category 3: Security materials (safety materials)

SN	Name and description	Specification	Unit Price (Rwf)	Quantity	Type of room
1	First Aid kit	• HSE Dressing, • Emergency Wound Dressing • Burn Dressing • Conforming Bandage • Triangular Bandages • Wash proof Tape • Universal Shears • Nitrile Gloves • Safety Pins • Guidance Leaflet	200,000 frw	20	Workshop

		• Gauze • Eye & Wound Wash • Antiseptic Cream • Pen Torch • Finger Stall			
3	Gum boot	• Colour: Black • Upper material: PVC • Construction: PVC injection • Water / Acid / Alkali / oil / grease resistant, non-slip • Resistant at low temperatures • Unit : pairs	10000	75	Changing room
4.	Disposable gloves	• Dimension :30cm • Material: nitrile • Colour: blue or white • Size: medium • Unit : box	12000	200	Changing room Store room

5	Rubber gloves	• Material: Nitrile • Color: Blue, Multicolor • Size: Xs/S/M/L/XL • Length: 40 cm Unit: pair	2000	100	Workshop Store room
7	Overall/Lab coat	• Style : Overcoat • Material: Cotton/Polyester • Feature: Anti-Wrinkle, Quick Dry Breathable • Structure : Open Fronted • Long arms • Color:White • Unit :piece	10,000	75	Changing room
10	Fire extinguisher(liquid)	• Stand on hall • Stopping fire by using water	30,000	20	Workshop

		• 12(Kg) of loaded weight • Made in metal and coated with red color • Having cylindrical shape • Unit : piece			
	Fire extinguisher(powder)	• Stand on hall • Stopping fire by using powder • 12(Kg) of loaded weight • Made in metal and coated with red color. • Having cylindrical shape • Unit : piece	40,000	20	Workshop
	Strapped Goggles	• Lens material: polycarbonate • Lens colour: clear • Lens coating: uncoated • Strap material: rubber (elastic) • UV protection: 99.9%	15,000	60	Store room
	Disposable Face mask	• Colour: Blue.	5000	10	Changing room

		• Material: 100% non-woven polypropylene • Construction: three layers with adjustable nose piece • Unit : box of 50 pieces			Store room

1.3. Category 4: Consumables and raw materials

	Item Description	Unit	Required Quantities	Unit Price	Type of room/application area
1	Non return valve,50m	pc	2	6,958	Field/site
2	Non return valve ,63mm	pc	2	8,268	Field/site
3	Air Release valve , 3/4''	pc	5	4,500	Field/site
4	Air Release valve , 1/2''	pc	5	3,500	Field/site
5	Hydrocyclone filter , 2''	pc	2	76,000	Field/site
6	Disc Filter (Plastic) , 2''	pc	2	104,000	Field/site
7	Screen Filter (Plastic) ,1.5''	pc	2	25,000	Field/site
8	Screen Filter (Plastic), 2''	pc	2	35,000	Field/site
9	Header Assembly/Manifold (Metal) , 2''	pc	2	31,200	Field/site
10	Header Assembly/Manifold (Plastic), 2''	pc	2	24,700	Field/site

11	Butterfly valve (Metal) , 1.5''	pc	2	27,947	Field/site
12	Butterfly valve (Metal) , 2''	pc	2	35,820	Field/site
13	Glyserine Pressure Gauge	pc	2	1,800	Field/site
14	Pressure gauge cock	pc	2	1,500	Field/site
15	Ball Valve (Plain Type), 1.5''	pc	2	1,500	Field/site
16	Flush Valve , 50mm	pc	10	1,339	Field/site
17	Flush Valve , 63mm	pc	10	1,427	Field/site
18	Flush Valve, 75mm	pc	10	1,994	Field/site
19	Rubber Grommet , 12/16mm	pc	100	54	Field/site
20	Start Connector/Take off , 12mm	pc	100	40	Field/site
21	Start Connector/Take off , 16mm	pc	50	40	Field/site
22	Straight Connector/Joinner , 12mm	pc	50	34	Field/site
23	Straight Connector/Joinner , 16mm	pc	50	38	Field/site
24	End Cap , 12mm	pc	50	39	Field/site
25	End Cap , 16mm	pc	50	43	Field/site
26	Joinner/ connector/reducer , 12 to16mm	pc	50	44	Field/site
27	PVC Pipes,PN4 , 63mm	m	200	500	Field/site
28	PVC Pipes,PN6 , 40mm	m	200	815	Field/site
29	PVC Pipe, PN 10 , 50mm	m	200	500	Field/site
30	HDPE Pipe,PN4 , 50mm	m	200	200	Field/site
31	HDPE Pipe,PN6 , 50mm	m	200	250	Field/site
32	Online/Plain Lateral , 12mm	m	300	300	Field/site
33	Online/Plain Lateral , 16mm	m	300	400	Field/site
34	InlineLateral/Dripline,2LPH (Thickness 0.4mm) ,12mm	m	20	130	Field/site
35	Inline Lateral/Dripline,2LPH, (Thickness 0.4mm) ,12mm	m	250	130	Field/site
36	Inline Lateral/Dripline,2LPH,(Thickness 0.4mm) ,12mm	m	250	130	Field/site
37	InlineLateral/Dripline,2LPH,(Thickness 0.4mm) , 16m	m	250	130	Field/site
38	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 12mm	m	250	130	Field/site
39	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 12mm	m	250	130	Field/site
40	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 12mm	m	250	130	Field/site

41	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 16mm	m	250	130	Field/site
42	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 16mm	m	250	130	Field/site
43	InlineLateral/Dripline,4LPH,(Thickness 0.4mm) , 16mm	m	250	130	Field/site
44	Online Drippers/Emitters/Wood Peckers , 4 LPH	pc	30	250	Field/site
45	Online Drippers/Emitters/Wood Peckers , 8 LPH	pc	30	300	Field/site
46	Online Drippers/Emitters/Wood Peckers , 14 LPH	pc	30	320	Field/site
47	Online Drippers/Emitters/Wood Peckers , 16 LPH	pc	30	350	Field/site
48	4 Way Barb Connector	pc	30	250	Field/site
49	2 Way Barb Connector	pc	30	200	Field/site
50	Polytube for barb connectors	pc	30	250	Field/site
51	HDPE Pipe,PN10 , 32mm	m	50	780	Field/site
52	HDPE Pipe,PN10 , 25mm	m	50	520	Field/site
53	HDPE Pipe,PN10, 50mm	m	50	1,850	Field/site
54	HDPE Pipe,PN12.5,50mm	m	50	2,133	Field/site
55	HDPE Pipe,PN16 , 63mm	m	50	3,639	Field/site
56	HDPE Pipe,PN 20 , 32mm	m	50	1,129	Field/site
57	HDPE Pipe,PN20 , 25mm	m	50	729	Field/site
58	HDPE Pipe,PN20 , 50mm	m	50	2,500	Field/site
59	HDPE Pipe,PN25 , 32mm	m	50	1,337	Field/site
60	Quick Coupling HDPE Pipes,6 Mtrs , PN 4, 63mm	pc	10	5,000	Field/site
61	Quick Coupling HDPE Pipes,6 Mtrs , PN 6; 63mm	pc	10	19,213	Field/site
62	Light Steel Latch Coupling HDPE Pipes,6 Mtrs ,PN 4; 63mm	pc	10	4,550	Field/site
63	Light Steel Latch Coupling HDPE Pipes,6 Mtrs ,PN 4;75mm	pc	10	5,700	Field/site
64	Light Steel Latch Coupling HDPE Pipes,6 Mtrs ,PN 6;63mm	pc	10	5,200	Field/site
65	Light Steel Latch Coupling HDPE Pipes,6 Mtrs ,PN 6;75mm	pc	10	6,500	Field/site
66	Brass Nozzel Sprinkler , 3/4''	pc	2	6,700	Field/site
67	Plastic Nozzel Sprinkler (Mini Sprinkler) 3/4''	pc	10	2,977	Field/site
68	Plastic Nozzel Sprinkler (Micro Sprinkler) 3/4''	pc	10	6,500	Field/site
69	QPC HDPE Bend/Elbow ,PN 6; 63mm	pc	10	3,800	Field/site

70	QPC HDPE Tee ,PN 6; 63mm	pc	10	4,000	Field/site
71	QPC HDPE Tee ,PN 6; 75mm	pc	10	4,000	Field/site
72	QPC HDPE End Cap ,PN 6; 63mm	pc	10	1,759	Field/site
73	QPC HDPE End Cap ,PN 6; 90mm	pc	10	1,857	Field/site
74	Latch Type HDPE Bend/Elbow ,PN 6; 63mm	pc	10	2,340	Field/site
75	Latch Type HDPE Tee,PN 6 ; 63mm	pc	10	5,200	Field/site
76	Latch Type HDPE End Cap,PN 6 ; 63mm	pc	10	2,424	Field/site
77	GI Reducer , 2.5'' X 1.25''	pc	10	2,210	Field/site
78	GI Reducer ,2.5'' X 2''	pc	10	3,120	Field/site
79	QPC Pump Connector ,PN 6 ; 63mm	pc	5	7,154	Field/site
80	Latch Type Pump Connector ,PN 6 ;63mm	pc	5	7,056	Field/site
81	Metallic gate valve, 1 inch	pc	10	6,700	Field/site
82	Metallic gate valve ,1.5 inch	pc	10	10,000	Field/site
83	Metallic Gate Valve; 63mm	pc	5	20,000	Field/site
84	GI Nipple,0.3 Mtr long ; 63mm	pc	10	4,398	Field/site
85	Light Steel Latch Coupling HDPE Pipes,6 Mtrs ,PN 10 ; 50mm	pc	10	3,250	Field/site
86	GI Elbow1-1/4 by 2,5 PN 4	pc	10	12,000	Field/site
87	Latch Type HDPE Tee PN10; 50mm	pc	5	27,000	Field/site
88	GI Reducer ; 3 by 2	pc	10	4,956	Field/site
89	GI Reducer ; 3 By2,5	pc	10	4,956	Field/site
90	Tee, PN4,40mm	pc	15	500	Field/site
91	Tee, PN4,50mm	pc	15	600	Field/site
92	Tee, PN6,40mm	pc	15	665	Field/site
93	Tee,PN6, 50mm	pc	15	1,141	Field/site
94	Tee,PN10, 40mm	pc	15	1,131	Field/site
95	Tee,PN10, 50mm	pc	15	2,010	Field/site
96	Tee, PN6, 75 x 75 x 50mm	pc	15	1,300	Field/site
97	Tee, PN6, 50 x 50 x 40mm	pc	15	800	Field/site
98	Elbow,PN4,40mm	pc	15	700	Field/site

99	Elbow,PN4,50mm	pc	15	750	Field/site
100	Elbow,PN6,40mm	pc	15	800	Field/site
101	Elbow,PN6,50mm	pc	15	1,000	Field/site
102	Elbow,PN10,40mm	pc	15	1,000	Field/site
103	Elbow,PN10,50mm	pc	15	1,200	Field/site
104	Service Saddle Clamps, PN6,63mm X 1''	pc	10	2,000	Field/site
105	Service Saddle Clamps, PN6,75mm X 1''	pc	10	2,300	Field/site
106	Service Saddle Clamps, PN6,90mm X 1''	pc	10	2,000	Field/site
107	PVC Reducing Bush,PN4, 40 X 50 mm	pc	10	390	Field/site
108	PVC Reducing Bush,PN4,50 X 63 mm	pc	10	600	Field/site
109	PVC Reducing Bush,PN4,63 X 40 mm	pc	10	700	Field/site
110	PVC Reducing Bush,PN4,75 X 50 mm	pc	10	700	Field/site
111	PVC Reducing Bush,PN4,90 X 63mm	pc	10	700	Field/site
112	PVC Reducing Bush,PN4,90 X 50 mm	pc	10	800	Field/site
113	PVC Reducing Bush,PN6,40 X 50 mm	pc	10	780	Field/site
114	PVC Reducing Bush,PN6,50 X 63 mm	pc	10	900	Field/site
115	PVC Reducing Bush,PN6,63X 40 mm	pc	10	800	Field/site
116	PVC Reducing Bush,PN6,75 X 50 mm	pc	10	1,200	Field/site
117	PVC Reducing Bush,PN10,40 X 50 mm	pc	10	677	Field/site
118	PVC Reducing Bush,PN10,50 X 63 mm	pc	10	1,050	Field/site
119	PVC Reducing Bush,PN10,63 X 40 mm	pc	10	1,177	Field/site
120	PVC Reducing Bush,PN10,75 X 50 mm	pc	10	1,600	Field/site
121	Elbow - 45 Degrees, PN4, 50mm	pc	15	800	Field/site
122	Elbow - 45 Degrees, PN4, 63mm	pc	15	1,100	Field/site
123	Tail Piece with metal Flange	pc	6	1,500	Field/site
124	Tail Piece with metal Flange	pc	6	1,500	Field/site
125	Tail Piece with metal Flange	pc	6	1,500	Field/site
126	Tail Piece with metal Flange	pc	6	1,500	Field/site
127	Tail Piece with metal Flange	pc	10	1,500	Field/site
128	PVC Solvent/Glue	pc	10	2,199	Field/site

129	Female Threaded Adapter,PN4,40mm	pc	15	200	Field/site
130	Female Threaded Adapter,PN4,50mm	pc	10	300	Field/site
131	Female Threaded Adapter,PN4,63mm	pc	10	400	Field/site
132	Female Threaded Adapter,PN6,40mm	pc	10	699	Field/site
133	Female Threaded Adapter,PN6,50mm	pc	10	1,200	Field/site
134	Male Threaded Adapter,PN4,40mm	pc	10	200	Field/site
135	Male Threaded Adapter,PN4,50mm	pc	10	200	Field/site
136	Male Threaded Adapter,PN4,63mm	pc	10	300	Field/site
137	Male Threaded Adapter,PN6,40mm	pc	10	710	Field/site
138	Male Threaded Adapter,PN6,50mm	pc	10	1,061	Field/site
139	Male Threaded Adapter,PN6,63mm	pc	10	1,500	Field/site
140	HDPE reduce connectors,PN10,32 by 50mm	pc	10	7,000	Field/site
141	HDPE reduce connectors,PN10,50 by 63mm	pc	10	7,540	Field/site
142	Tee HDPE type or polyester, PN10,40*40*40mm	pc	10	6,450	Field/site
143	HDPE conectors Female and Male,PN10,40*40mm	pc	10	7,000	Field/site
144	HDPE conectors Female and Male,PN10,50*50mm	pc	10	3,300	Field/site
145	Tee HDPE type or polytilene, PN10,50*50*40mm	pc	10	6,010	Field/site
146	Gate valve of HDPE type or polytilene,PN10,40mm	pc	5	6,500	Field/site
147	Gate valve of HDPE type or polytilene,PN10,50mm	pc	5	8,500	Field/site
148	Gate valve of HDPE type or polytilene,PN10,90mm	pc	5	25,000	Field/site
149	Fertilizer,(urea,DAP,NPK,organic manure)	Kg	10	5,000	Field/site
150	Chemicals	Kg	5	2,500	Field/site
151	Seedlings	Kg	50	1,000	Field/site
152	Cement	Sack	2	14,490	Field/site
153	Sand	m3	1	12,500	Field/site
154	Stones	m3	1	16,000	Field/site
155	Fuel (Gasoline)	ltr	50	1,580	Field/site

2. Training facilities

2.1. Furniture and office materials

SN	Name and description	Specification	Unit Price	Quantity	Type of room
	Laptop and its accessoires	- Model No. 001 - Processor Type: Intel Atom - RAM Capacity: ≥4GB - Hard Disk Capacity: 500GB - Graphics Card: Integrated Graphics Card - Processor Brand: intel - Widescreen: Widescreen - Built-in Bluetooth: Built-in Bluetooth - Fingerprint: Without Fingerprint	586,500	6	Office room

		- Laptops: Light and Ultra-Slim Laptops - ROM: > 256G			
	Desktop & its accessories	- Model No. K-21.504 - Memory Type: DDR3 - Use: Home/Commercial/Game - CPU Frequency: 2.5-3.0GHz - Keywords: All in One PC - Colour: Black - Interface Type: HDMI, VGA, USB - Display Ratio: 16:9 - Processor Series: Intel Core I7 - Memory: >4G - Hard Disk: SSD 500 GB - Display Resolution: 1920X1080 Power: 100-240V AC 50/60Hz - Output: 12V DC 6A 60W - Dimension: 60*15*45 - Trademark: Kuai	395,373	3	Office room
		- Type: Display Book			

	File	- Material: Plastic - Type Document Bag: Multiply - Size: A4 - Feature: Label - Usage: Data Book - Model No. 5005 - Colour: Assorted - Lock: Without Lock - Zipper: Without Zipper - Material: Plastic - Thickness: 0.6/0.03mm	2500	60	Office room
	Printer	- Model no. all in one copier, printer and fax-0350 - Function: print, copy, scan and fax - Without network printing - Max printable size: A4 - Laser type.	700,000	3	
	Paper	- Material: 100% wood pulp - Size: A4, - Letter size(8.5"x11"),	6500	70	Office room

		- Legal size(8.5"x14") - Whiteness: 98-100% - Packing: 500 sheets per ream			
	Office table	- Usage: office room/ - Material: MDF - Color: woody - Style: Modern - Folded: Unfolded - Size: 1200W*600d*750hmm - Drawers: 3 Drawers	600,000	6	Office room
	Chair	- Model no. HY-128B - Rotary - Material: Genuine leather - Modern style - Dimension: 78*32*58 cm	95,900	12	Office room
	Power extension cable(	- Mode no. SR 530 - Color: White - Cable length: 2 m - Hole digits: 6 - Material: PC+ABS	6600	12	Office room

		- Dimension: 370*70.5*43mm			
	Documents Shelf cupboard	- Mode no. SZ-FC017 - Condition: New - Wood style: woody - Material: wood - Door: 2 - Length and width:	418,250	7	Office room
	Pen	- Mark: Bic - Colour: blue and red - Material: Plastic - Inner box: 50 pcs	200	5 boxes	Office room
	Pencil	- Body material: wood - Body colour: multiple - Lead diameter: 2.65mm - Dimension: 7 inches.	150	25 pcs	Office room
	Marker	- Color: Multi colour - Hardness: Medium soft - Ink type: Dry Erase - Point diameter: 4.5 mm - Size: normal	300	5 boxes	Office room Class room Workshop

		- Material: Plastic(polypropylene) - Dimension: 142*15mm			
	A4 paper padded envelope	- material: Rigid paper - Seal bag - Moisture proof - Bio-degradable - Disposable - Shock resistance - Thickness: 2.5-4mm - Color: Gold	150	100 pcs	Office room Workshop

2.2. Audio-visual materials

SN	Name and description	Specification	Unit Price	Quantity	Type of room
	Flat Screen	• Screen size: 28.2 inches • Flat / Curved: Flat • Resolution: 3840 x 2560 • Refresh rate: 60 Hz • Resolution type: 4K+ Ultra-HD • Aspect ratio: 3:2	930, 000	1	Classroom

		• Multimedia Microphone, Speaker quantity, Speaker power			
	Projector	• Brightness 3,600 ANSI Lumens • Resolution 800x600 • Aspect Ratio 4:3 (SVGA) • Contrast 20,000:1 (full on/off) • Display Type DLP x 1 • Color Processing 10-bit • Video Modes 720p, 1080i, 1080p/60, 1080p/24, 1080p/50, 576i, 576p, 480p, 480i • Data Modes MAX 1920x1200 • Lamp Life 4,000 hours / 10,000 hours (Eco) • Lamp Model MC. JPV11.001 • Digital Zoom Yes • Power 240 Watts 100V - 240V • Size 11 cm x 31 cm x 24 cm	400,000	1	Classroom

	Projector board screen	• Length: 2m • Height: 1.5m • Colour: white	600,000	1	Classroom
	Laptop	• 6200U CPU @ 2.30GHz 2.40 GHz • Installed RAM:8.00 GB (7.89 GB usable) • System type: 64-bit operating system, x64-based processor • RAM: 500 GB	700,000	10	Classroom
	Flash	•64 GB	15,000	3	classroom

2.3. Didactic materials

Name and description	Specifications	Quantity	Type of room
Black board drawing instruments	A 5-piece set of durable, lightweight plastic instruments designed for blackboards. Features handles for ease of use. Includes a 45® triangle (23" base, 16" sides), 60° triangles (2" base), 180° protractors, meter ruler (39"/100 cm), and a clear acrylic compass (18" L with rubber suction cup).	2 set	classroom

Solar panel	Type: amorphous Power: 80watts Peak Output: 5.0A @ 17.2V Approx. watt-hours/day*: 560 Approx. amp-hours/day*: 35 Dimensions: 1196x534x35mm Weight: 7.9kg * Based on 7 hours of average daily peak sunlight hours	4	workshop

2.4. Infrastructures

The workshop must be of concrete structure. Based on class size of **25 learners,** the space requirements for the teaching/learning and circulation areas are as follows:

Type of premises	Number of rooms	Length (meters)	Width (meters)	Total surface (m^2)	Occupation	
					Hours*	% **
Classrooms	n/a	9	7	63		
Workshop/site	1	22	13	286		
ICT lab	1	10	9	90		
Storage area for consumables	1	5	6	30		
Storage area for tools	1	9	7	63		
Trainers' room	1	4	4	16		
Washroom	2	2	4	8		
School plot	1	100	100	10,000		
Greenhouse	1	40	30	360		
Garage	1	20	15	300		

N.B: The occupation of a training classroom is in function of a group of 25 learners for the length of the training package not considering the hours of the internship. The group of trainees is divided into 2 (12 or 13 learners per workshop).

The plans of the workshops and classrooms are annexed to the training organisation guide.

* Total hours of occupation must be equal to the total duration of the training (excluding the duration of the internship).

**The percentage of the occupation must equal 100%.

The premises that are not used in learning activities can have hours / occupation. So we will write 0 for these types of premises.