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Regional Water Supply Scheme: Summary Cost and Scope Norms for the Preparation of UPPF Projects

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Notes: A) Indicative project sizes, capital values and preparation scopes have been utilised - in reality there will be variations and a standard project preparation template is not possible. B) Project Capital Value is inclusive of all project costs (e.g. project preparation fees, engineering design fees, construction supervision and construction costs). C) Preparation management is at 15% because of a high ratio of complexity relative to the cost of project preparation / diseconomies of scale (i.e. small preparation budgets vs implementation budgets but high complexity).

Disclaimer: Whilst these toolkits have been made available by UPPF for external consumption, including use in support of the CIDB's 'Gateway' process for preparing infrastructure projects, it is emphasized that these toolkits are a work-in-progress and should not be used in a prescriptive fashion. UPPF will update these toolkits from time to time based on experience gained in preparing specific projects. Any suggestions for improvements or refinements should be emailed to UPPF / PPT for the attention of the National Co-ordinator on pptrust@worldonline.co.za

General UPPF Assumptions: 1) Contract and / or Tender Documentation for project implementation is an additional activity / service provided on request; 2) The intensity of the scope of work outlined below has generally been kept to the minimum necessary to determine: a) the viability of the project and b) a preliminary concept and rough estimate for construction / implementation. The limited budgets typically available for preparing projects have also been taken into consideration. 3) Professionals / companies who undertake preparation work will also be eligible to tender for implementation work. Should this not be the case, then it is likely that there will be an additional cost premium given the reduced potential for professionals to earn profit.

Description: RDP level of service (basic) water supply to between 3 and 15 villages as a single scheme. This type of project will typically include extensive work on locating and verifying potential sources of raw water, incl ground water potential assessment; bulk raw water storage*, water treatment works, bulk clear water storage, bulk transfer pipelines; balancing storage reservoirs and water reticulation networks. The hydraulic design will likely require pumpstations to be installed (either as borehole pumps or raw and clear water transfer pumps). Demographic information, particularly with regards to potential growth in population and the likely demand for a higher level of service, either from the start of the project or a gradual evolution of the scheme from RDP (tapstands) to yard taps or full pressure metered connections. Typical capital costs can be expected to range from R15,0 to R75,0 million.

Assumptions:

Minimum Project Capital Value (R): 15,000,000
Maximum Project Capital Value (R): 75,000,000

Preparation Scope:	Professional	Days (min)	Days (max)	Rate	Budget excl. VAT (min)	Budget excl. VAT (max)
Preliminary Assessment						
Preliminary Assessment: To confirm project basics and identify any early risks to be assessed further in the next stage, to confirm municipal buyin and support and to clarify perspective of capital funder in relation to the project to be packaged.	Project Preparation Manager	2	3	6,800	13,600	20,400
Travel					2,000	2,000
Subtotal 1 - Prelim -Ass					15,600	22,400

Pre-Feasibility (CIDB 'Assessment')						
<u>Water demand assessment / Situational Analysis:</u> confirmation of water demand including supply population and other relevant demographic data, existing water supply, and expected growth rates and required service level.	Civil Engineer	2	5	6,800	13,600	34,000
<u>Water resource assessment:</u> Desktop determination of potential bulk water source/s	Civil Engineer	2	6	6,800	13,600	40,800
<u>Ground Water resource assessment:</u> Desktop evaluation of groundwater potential for water supply	Geohydrologist / Geologist	2	15	6,800	13,600	102,000
<u>Surface Water resource assessment:</u> Desktop evaluation of potential surface water source/s	Hydrologist	0	15	6,800	-	102,000

<u>Geotechnical investigations: Evaluation of ground conditions</u> for reservoir positions, pipeline trenches, i.t.o. excavatability (hard rock) and suitability of in-situ material for pipe bedding	Geologist	2	3	8,400	16,800	25,200
<u>Geotechnical samples and tests:</u> for reservoir positions, pipeline trenches etc.	Geotech Lab	na	na	na	10,000	35,000
<u>Preliminary development and evaluation of alternative water supply options / scenarios:</u> Engineering viability, sustainability, level of service and decision on preferred option(s)	Civil Engineer	1	2	6,800	6,800	13,600
<u>Social facilitation:</u> Basic demographic profile, preceded by initial introductory community meeting.	Social Facilitator	4	8	2,400	9,600	19,200
<u>Pre-Feasibility report</u>	Civil Engineer	1	1.5	6,800	6,800	10,200
Subtotal 1 - Pre-Feasibility					90,800	382,000

Feasibility Study (CIDB 'Concept')						
<u>Development and evaluation of alternative water supply options / scenarios:</u> Engineering viability, source sustainability, economic sustainability, O & M requirements, level of service and decision on preferred option(s)	Civil Engineer (specialist)	6	10	6,800	40,800	68,000
<u>Conceptual design</u> for scheme including source development, abstraction, treatment, bulk transfer (weirs, well points, river abstraction, spring protection, boreholes, pumps, rising mains, gravity mains), water treatment, bulk and balancing storage, reticulation pipeline and tapstands.	Civil Engineer (specialist)	4	15	6,800	27,200	102,000
<u>Logistical assessment & plan:</u> logistics and plan for implementation (e.g. material supplies, transport, road access etc).	Civil Engineer	1	2	6,800	6,800	13,600
<u>EPWP / local job creation:</u> plan for creation of local skills development and work opportunities	Civil Engineer	1	2	6,800	6,800	13,600
	Social Facilitator	2	8	2,400	4,800	19,200
<u>Institutional and Social Input:</u> Demographic profile; community participation and consultation; EPWP / local job creation: plan for creation of local skills development and work opportunities	Social Facilitator	10	15	2,400	24,000	36,000
<u>Preliminary environmental assessment:</u> to determine if a listed activity is triggered	Environmental consultant	1.5	2.5	4,000	6,000	10,000
<u>Basic environmental Assessment</u> required to determin environmental impact	Environmental consultant	0	20	4,000	0	80,000
<u>Environmental Impact Assessment (EIA):</u> (Additional cost to basic assessment))	Environmental consultant	0	15	4,000	0	60,000
<u>Specialist Reports:</u> for Enviromental approvals	Environmental consultant/Specialist	0	7	4,000	0	28,000
<u>Implementation Estimates & Programme:</u> Estimates for capital costs; operation and maintenance costs (10 to 15 year life span), financial viability and socio economic analysis + detailed programme (timetable) for implementation.	Civil Engineer (specialist)	1.5	8	6,800	10,200	54,400
<u>Final report</u>	Civil Engineer (specialist)	1	2	6,800	6,800	13,600
Subtotal 2 - Feasibility					133,400	498,400

Funding Application						
<u>Funding application</u>	Civil Engineer (specialist)	0.5	1	6,800	3,400	6,800
Subtotal 3 - Funding Application					3,400	6,800
Combined Subtotal 4 (all stages)					243,200	909,600

* Note: In the event that a new dam (in-stream or off-channel) is considered necessary, the scope and costs would require revision upwards, particularly due to the need for specialist engineering input and a full EIA.

** For a full EIA to be carried out, the costs will be higher due to specialist input required. Allow additional R60k to environmental input.

Travel & minor disbursements at 7.5%	18,240	68,220
Project Preparation Management at 15%	36,480	136,440
Subtotal 5	297,920	1,114,260
Contingencies at 5%	14,896	33,428
Total Preparation Budget	312,816	1,147,688
Total Preparation costs as a percent of total project cost (including capital)	2.1%	1.5%