18th March 2011

Municipal Waste Management Facilities:
Summary Cost and Scope Norms for the Preparation of UPPF Projects

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.

Description: Municipal waste disposal sites ("landfill sites"), transfer stations, materials recovery facilities and waste treatment facilities that requires a Waste Management Licence in terms of the Waste Act, 2009, serving municipal areas only i.e General Wastes only. This type of project will typically include extensive work on formulating and/or verifying waste generation volumes, possibly including characterising waste for materials recycling, identifying potential waste management sites, ranking and selecting a preferred site. Preliminary design will likely include a detailed geohydrological assessment including exploratory/monitoring boreholes, a detailed Environmental Impact Assessment, and conceptual design of lining, drainage and other infrastructure to mitigate potential environmental impacts. (Detailed design is normally only undertaken once the License has been issued, and forms part of the implementation phase.) Note that waste collection and street cleaning infrastructure is not included. Typical capital costs can be expected to range from R1,5m for small transfer stations, R3,0m for Communal Landfills, to R15,0 million for Medium Landfills. Larger landfills are normally only required in Metropolitan areas and funding is managed internally.

Assumptions:
New waste management facility
Minimum Project Capital Value (R): 2,500,000
Maximum Project Capital Value (R): 15,000,000

		INDICATIVE time / budgetary requirements				
Preparation Scope:	**Professional**	**Days (min)**	**Days (max)**	**Rate**	**Budget excl. VAT (min)**	**Budget excl. VAT (max)**
Preliminary Assessment						
Preliminary Assessment: To confirm identify key issues and risks early on for further assessed in the next stage. To confirm need. To confirm municipal buyin and support. To clarify the perspective of capital funder in relation to the project (i.e. are they likely to consider it as worthy of support, if proven feasible).	Project Manager or Civil Engineer	2	4	6,800	13,600	27,200
	Subtotal 1: Preliminary Assessment				**13,600**	**27,200**
Pre-Feasibility (CIDB 'Assessment') (Waste Management Facility Site Selection)						
Pre-feasibility First Phase (Waste Management & Pre-screening of Need):						
Waste Volume Assessment/Situational Analysis: Analyse existing waste generation data, obtain demographic data and projections, determine future potential waste generation, determine future waste management bulk facility options/requirements. Waste characterisation into the various fractions may also be required if materials reclamation/recycling is to be considered.	Civil Engineer	2	8	6,800	13,600	54,400
Preliminary Waste Management Facility Classification: Determine waste storage/treatment/disposal quantities and climatic water balance, and determine preliminary Site Classification	Civil Engineer	2	4	6,800	13,600	27,200
Engineer's Preliminary Assessment of Need: Based on a site visit and assessment of available desktop information: Assess the pro's and con's of proceeding with a new or upgraded site. Likelihood of there being suitable landfill sites. Commentary on need for a new / upgraded landfill site. Identification of key issues to be addressed in subsequent phase (such as likely costs vs scale of solid waste 'load' / demand). Advisability of proceeding with more detailed feasibility work focussing on selection of most suitable site and conceptual design. Short / Mini Report.	Civil Engineer	2	4	6,800	13,600	27,200
	Subtotal Pre-feasibility first phase				***40,800***	*108,800*

Pre-feasibility Second Phase (Site Selection & related Assessments)						
Candidate Site Selection: Identify areas with fatal flaws, identify potential areas for landfill sites based on economic, environmental and public acceptance criteria. Initiate Public Participation process and present findings. Select potential landfill sites.	Civil Engineer	5	10	6,800	34,000	68,000
Preliminary Environmental Assessment: Determine environmental characteristics of region, assist with location of candidate sites, assist with Ranking exercise, preparation of report for inclusion in Site Selection Report	Environmentalist	5	12	4,000	20,000	48,000
Preliminary Geohydrological Assessment: Determine geohydrological characteristics of region, assist with location of candidate sites, assist with with Ranking exercise, preparation of report for inclusion in Site Selection Report	Geotech/Gehydrologist	5	12	8,400	42,000	100,800
Preferred Site Selection: Rank candidate landfill sites using a ranking matrix and select preferable site, prepare Candidate Site Selection report. Initiate Public Participation, present report to authorities for acceptance, and then to I&AP's	Civil Engineer	4	8	6,800	27,200	54,400
Feasibility Report: Prepare a Feasibility Report on the Preferred Site, including a summary of the Site Classification, Site Selection procedure followed, current site zoning and description, a preliminary geohydrological assessment, a preliminary environmental assessment and a conceptual design. Present report to authorities for acceptance, and then to I&AP's	Civil Engineer	3	6	6,800	20,400	40,800
Landfill Licence Application:Prepare and submit landfill licence application,and submit to authorities	Civil Engineer	1	2	6,800	6,800	13,600
Application for Authorisation: Prepare application and submit to authorities.	Environmentalist	1	2	4,000	4,000	8,000
Community participation and consultation ongoing throughout the above process.	Social Facilitator	3	12	2400	7200	28,800
	Subtotal Pre-feasibility first phase				***161,600***	***362,400***
				Subtotal 2: Pre-Feasibility	**202,400**	**471,200**

Feasibility Study (CIDB 'Concept') (Licence Application Report)						
Detailed Environmental Site Investigation: Detailed site investigation into preferred site including physical geography, climate vegetation, existing infrastructure, existing land-use etc.	Environmentalist	3	7	4,000	12,000	28,000
Geohydrological Investigation: Detailed investigation of soils, geology and geohydrology, geophysical survey, siting and supervising drilling of boreholes (if required), hydro census, preparation of a detailed Geohydrological Report	Geohydrologist	3	25	6800	20,400	170,000
Air Quality and Landfill Gas: (If Required) Investigation into air quality and probability of landfill gas occurance etc.	Air Quality Specialist	5	15	4000	20,000	60,000
Environmental Impact Assessment: Basic Assessment or Scoping and Environmental Impact Reporting as required by the Schedule of the Waste Act,	Environmentalist	BA	EIA	4,000	Basic Assessment	Scoping & EIA
		15	365		60,000	100,000
EIA specialist report 1 - provision	Specialist 1	0	8	6,800	-	54,400
EIA specialist report 1 - provision	Specialist 2	0	8	6,800	-	54,400
Site Preliminary Design: Preliminary design of site including all engineering measures required to mitigate potential impacts, and all infrastructure required to operate the site	Civil Engineer	4	10	6,800	27,200	68,000
Development and Operating Plan: formulation of the development plan including provision for future phases, landfill levels , future infrastructure requirements, monitoring etc.	Civil Engineer	2	5	6,800	13,600	34,000
End-Use Plan: formulate the final closure and conformation plan for the envisaged end-use of the closed facility.	Civil Engineer	1	3	6,800	6,800	20,400
Licence Application Report: preparation of report summarising and including all above information, submit in support of the Licence Application and Application for Authorisation	Civil Engineer	2	10	6,800	13,600	68,000
Community participation and consultation ongoing throughout the above process.	Social Facilitator	2	3	2400	4800	7,200
				Subtotal 3: Feasibility	**178,400**	**664,400**

Funding Application						
Funding application	Civil Engineer (specialist)	1	2	6,800	6,800	13,600
				Subtotal 4: Funding Application	**6,800**	**13,600**
				Combined Subtotal 5 (all stages)	**401,200**	**1,176,400**

Monitoring Boreholes	**-**	**250,000**
Travel & minor disbursements at 7.5%	30,090	88,230
Project Preparation Management at 15%	60,180	176,460
Subtotal 6	491,470	1,691,090
Contingencies at 5%	24,574	50,733
Total	**516,044**	**1,741,823**
Total Preparation costs as a percent of total project cost (including capital)	**20.6%**	**11.6%**