

National and International References

Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Sanitation Master Plan	Emergency Infrastructure Reconstruction Project Sanitation Improvement in Kabul City Project components: Investment Measures, Pilot Project Areas, Capacity Building, Strategic Sanitation Plan, Sewerage and Drainage Master Plan	Afghanistan	2004-2005	Municipality of Kabul	IDA	868,000 EUR
Tendering and Supervision Capacity Building Organisational Strengthening Engineering designs and bidding documents including detailed social and environmental management plans Lessons from priority interventions / pilot projects and update of the strategic sanitation plan Detailed technical studies Engineering designs and bidding documents including social and environmental impact assessments and management plans	Continuation of Consultancy Services for Sanitation Improvements in Kabul City The proposed Extension of the Consultancy builds upon the achievements under the Initial Consultancy and ensures continuity of implementation in the short-term while the medium-term Urban Water Supply and Sanitation Programme is being prepared. The Consultancy Services cover the following components: Component 1: Investment (Goods and Works): Tendering and Supervision Component 2: Operation Support Component 3: Detailed Technical Studies and Engineering Designs of Medium-Term Programme	Afghanistan	2006-2007	Municipality of Kabul	IDA	1,500,000 EUR
Data Collection Cost Estimates	Rehabilitation of the Water Supply System Tuzla Data collection, study preparation for rehabilitation and extension of the water supply system at Tuzla (water treatment plant, new pump station, new connection pipeline, network rehabilitation) with cost estimate. Proposal of emergency measures.	Bosnia and Herzegovina	1996	Council of Europe, Social Development Fund	Client	
Detailed Design Tender Documentation	Tlokweng Water Supply and Sanitation Project Review of preliminary design, reticulation analyses, detailed design of water and sewerage reticulation systems, production of CAD construction drawings and tender documentation	Botswana	1997-1998	Department of Water Affairs	Government of Botswana	220,000 USD
Feasibility Study	Feasibility Study Kjustendil General data collection of the supply system; Determination of the non-revenue water rate; Elaboration of detail recommendations for the introduction of a 3 year water loss reduction programme; Cost estimate and economic analysis for emergency improvement measures as well as for a complete network rehabilitation project	Bulgaria	1996	VEIKA Kjustendil	Client	
Detailed Design Tendering and Works Supervision Preliminary Studies Hygiene and Sanitation	Study and Design for the Rehabilitation of Ouagadougou Water Supply System	Burkina Faso	1989-1995	Direction des études et de la planification / Ministère de l'eau		1.830.000 EUR
	Rural Development Programme in the Sissili Region Programming of the intervention, realisation of 270 new boreholes, implantation (geophysical investigations), drilling, equipment, pump tests, installation of pumps, rehabilitation of 80 water points, installation of 20 solar powered submersible pumps: siting, pump tests, dimensioning, the construction of 5 large-diameter wells	Burkina Faso	1992-1995	Ministry of Water and Environment	EDF (European Development Fund)	1,600,000 USD
Works Supervision Hydrogeology Community Participation	Rural Water Supply Project BAM - Phase 1 Hydro geological and geophysical studies, Drawing up of the Programme, Works supervision, Setting up of a maintenance programme, Sensitisation and Community Mobilisation, Sanitation Measures and Education	Burkina Faso	1995-1997	Ministry of Water and Environment	KfW	1,400,000 USD

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Works Supervision Hydrogeology Community Participation	Rural Water Supply Project BAM - Phase 2 Hydro geological and geophysical studies, Drawing up of the Programme, Works supervision, Setting up of a maintenance programme, Sensitisation and Community Mobilisation, Sanitation Measures and Education	Burkina Faso	1998-2000	Ministry of Water and Environment	KfW	400,000 USD
Preliminary and Final Design Tender Documents Hygiene and Sanitation Hydrogeology Works Supervision	Rural Water Supply Project in the districts of Mouhoun and Balè Development of Standard Inventory; Training of personnel for Inventory; Inventory; Preparatory studies; technical studies; accompanying measures and capacity building; technical assistance; control and supervision of drilling and installation works	Burkina Faso	2004-2007	Ministère de l'agriculture de l'hydraulique et des ressources halieutiques	KfW	2,300,000 USD
Final Design and Layout Construction Supervision Supervision of initial operation phase	Wastewater Treatment Plant Guangzhou Liede Size: 660,000 P.E. Two-step (activated sludge high rate/low rate) treatment plant designed for nitrification, denitrification and biological and chemical phosphorus removal	China	1997-2000	Brochier Group China National Machinery Export and Import Coop.		
Preliminary and Final Design Tender Documents	Wastewater Treatment Plant Vinkovci; Size: 43,000 P.E. Mechanical and biological treatment plant designed for BOD and COD elimination, removal of nutrients is optional. Collection of design data, Concept analysis	Croatia	2000-2002	Hrvatske Vode Zagreb	IBRD	
Feasibility Study	Wastewater Treatment Plant Budweis Size: 420,000 P.E. Enlargement and refurbishment of the existing wastewater treatment. The existing plant based on activated sludge process had to be enlarged due to higher connection size and demanding process aims. Mechanical and biological treatment plant designed for pre-denitrification and biological and chemical phosphorus removal.	Czech Republic		Municipality of Budweis	Municipality of Budweis	
Design Tender Documents Supervision Detail Engineering	Rehabilitation of Communal Infrastructure Utilities, Georgia Phase I Civil works rehabilitation, Consulting, Bid Evaluation, Hydraulics studies and engineering, technical studies, Supervision/Inspection of Construction, Training and Transfer of Technology, Tender formulation for hardware/software, Checking of Design, Detailed engineering, Design-architectural-engineering-industrial-etc., Site Supervision	Georgia	2002	Ministry of Environment		480,420 USD
Detailed Design Preparation of Tender Documents Construction Supervision Organizational and Financial Management	Rehabilitation of Communal Infrastructure Utilities Design, preparation of tender documents and construction supervision of Emergency Measures in Kashuri, Borjomi, Achalziche, Adigeni, Bagdathi, Kharagauli: replacement of pipelines, rehabilitation of a pumping station and new water reservoirs	Georgia	2002-2004	Ministry of Environment	KfW	920,000 USD
Organizational and Financial Management	Rehabilitation of Communal Infrastructure Facilities – Training Component Development of Organisational Structure for the Municipal Water Association, Institutional Strengthening, competency - based staff development, development and implementation of and inventory and documentation system, Financial Management and Investment Planning, Financial Accounting, Business Plan, theoretical and practical training in Operation and Maintenance, training in leak detection and repair	Georgia	2004-2005	Ministry of Environment	KfW	690,000 USD
Detailed engineering design	Rehabilitation of Kobuleti Water Supply and Sewerage Systems 1)Preparation of detailed engineering design for Rehabilitation of Kobuleti water supply and sewerage systems to ensure safe and reliable operation of Kobuleti water supply and sewerage systems, secure water supply to the consumers and significant reduction of the maintenance costs. Main objectives are: • Perform an Engineering design for the rehabilitation of the water supply and the water sewage of the KOBULETI city.	Georgia	2007 - 2009	Municipal Development Fund of Georgia	IDA	€ 67,850

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	<ul style="list-style-type: none"> • Establish a "bill of quantities" • Compute the costs of each item listed in the "bill of quantities" • Set up a planning of implementation • Write the terms of reference for acquisition of needed equipments and services <p>2) Following the award of a suitable Works Contract, the Consultant will provide Field Supervision of Works (Follow-on) during the physical execution of the Works (Phase II).</p>					
Detailed engineering design	<p>Rehabilitation of Kutaisi Water Supply Systems</p> <p>1) Preparation of detailed engineering design for Rehabilitation of Kutaisi water supply system to ensure safe and reliable operation of Kutaisi water supply system, secure water supply to the consumers and significant reduction of the maintenance costs. The project envisages rehabilitation works for the water supply system facilities – wellfields, pumping stations, reservoirs and the network, including installation of water meters (Phase I).</p> <p>2) Following the award of a suitable Works Contract, the Consultant will provide Field Supervision of Works (Follow-on) during the physical execution of the Works (Phase II).</p>	Georgia	2007 - 2009	Municipal Development Fund of Georgia	IDA	€ 67,850
Preliminary and Final Design Construction Supervision Tender Procedure Sanitation Survey	<p>Overall Design of Sewerage System for Abwasserverband (Sewerage Utility) Schwabachtal</p> <p>Survey, preliminary and final design, determination of pollution loads, approval application documents, construction drawings, tender procedure, supervision-in-chief, construction supervision</p>	Germany	1963-1998	Abwasserverband Schwabachtal		approxim. 34,000,000 EUR
Preliminary and Final Design Construction Supervision Cost Determination Preparation of Tender Documents	<p>South-Western Main Sewage Collector 2</p> <p>Preliminary and final design, preparation of tender documents, construction supervision for a new sewer line (diameter 2.5 – 3.0 m, length 12 km) being laid completely by no-dig process (new Austrian tunnelling construction) in a depth of 9.5 – 12 m below ground.</p>	Germany	1988	City of Nuremberg, Civil Engineering Department	City of Nuremberg	51,000,000 DM Project Value
Inventory and Documentation	<p>Risk Assessment of Hazardous Materials and Waste</p> <p>Conducted an inventory for the above posts and after documenting the results, produced solutions and recommendations on treatment and disposal of the hazardous materials and waste found on site</p>	Germany	1988-1990	U.S. Army Corps of Engineers	U.S. Army	666,000 USD Project Value
Design and Tendering Documents Construction Management Construction Supervision	<p>Wastewater Treatment Plant Sulzfeld</p> <p>The two main components of the plan included:</p> <ul style="list-style-type: none"> - the construction of the 52 kmlong trunk main from Nuremberg - the water treatment plant at Sulzfeld <p>Treatment plant: feasibility studies, site investigations, preliminary and final design, tender and contract documentation, construction supervision, supervision in chief</p>	Germany	1988-1993	Fernwasser-versorgung Franken (FWF)	Fernwasser-versorgung Franken (FWF)	36,000,000 DM Contract Value
Design Construction Supervision Planning	<p>Storm Water Settling Basin – Berlin Zehlendorf</p> <p>Planning, design, construction supervision</p>	Germany	1991-1992	Berliner Wasserbetriebe	Berliner Wasserbetriebe	6,500,000 USD Project Value
Preliminary and Final Design Construction Management	<p>Rehabilitation of Sewer and Stormwater Drainage System, District 1, Volkswagen plant Wolfsburg</p> <p>Preliminary and final design, construction management</p>	Germany	1991-1993	Volkswagen AG	Volkswagen AG	3,000,000 USD
Final Design and Layout Construction Supervision	<p>Wastewater Treatment Plant Köln-Weiden</p> <p>Size: 88,500 P.E.</p> <p>Mechanical and biological treatment plant designed for nitrification, denitrification and biological and chemical phosphorus removal, sludge treatment by gravity and mechanical</p>	Germany	1991-1993	Municipality of Köln, Amt für Stadtentwässerung	Municipality of Köln, Amt für Stadtentwässerung	

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	thickening separated for primary and surplus sludge, anaerobic mesophilic digestion and mechanical dewatering					
Evaluation of the existing Sewerage System Recommended Improvements Cost Estimates	General Drainage Plan – Eberswalde-Finow In the early stage of the project the relevant main and branch sewers were surveyed and an assessment of their structural condition was made. A general drainage plan, based on the existing design had to be made. Thereafter a cost estimate for short and medium term measures was prepared.	Germany	1992	MWA Frankfurt/Oder		15,300,000 DM Project Value
Plan Development Computer Hardware Specifications Software Procurement Digitalisation Data Transfer from remote Camera Training.	Network Information System for MIDEWA, Merseburg Plan development, computer hardware specifications, software procurement, digitalisation, data transfer from remote camera, training.	Germany	1992-1993	Central Germany Water and Wastewater GmbH (MIDEWA), Halle	MIDEWA – Halle	700,000 USD
Water Management Design	Rehabilitation of Sewers, Erlenstegen-Eichelberg (Phase 1) Concept Design, Study of Design Variants Method 1: Sewer Rehabilitation by Shortpipe Relining, PE-HD Bekaplast Pipe Method 2: Sewer Rehabilitation by Hose Tube Relining Insituform Tube	Germany	1992-1993	City of Nuremberg		1,800,000 DM
Design Tendering Construction Supervision	Sewage Tunnel Zeulenroda (Thuringia) The design of the tunnel consists of the tunnel and the intake structure, drop-manhole and outlet structure. The designed sewage tunnel has a total length of 2,378 m. It is divided in two tunnel sections at the drop-manhole.	Germany	1992-1995	Zeulenroda Administration Union for Potable Water and Sewage		33,000,000 DM Contract Value
	GENERAL SEWERAGE IN THE CITY OF GERA Public combined sewage system; Longitude: 320 km; 50 precipitation relief constructions; catchment area: 2350 ha; cased brooks (former receiving waters) now used as combined collectors; reopening of the cased receiving brooks; support of elaboration of a maintenance plan; graphical data base program for the drainage system	Germany	1992-1998	Zweckverband Wasser/Abwasser "Mittleres Elstertal"	Zweckverband Wasser/ Abwasser "Mittleres Elstertal"	3,500,000 USD
Preliminary and Final Design Preparation of Tender Documents Construction Supervision	Wastewater Treatment Plant Teublitz, Maxhütte-Haidhof Size: 22,000 P.E. Study, preliminary and final design, preparation of tender documents, construction supervision for a new wastewater treatment plant (mechanical and biological treatment designed for nitrification, denitrification and biological and chemical phosphorus removal).	Germany	1993-1995	Wastewater Association Maxhütte-Haidhof and Teublitz	Wastewater Association Maxhütte- Haidhof and Teublitz	
Final Design and Layout Construction Supervision	Wastewater Treatment Plant Aschaffenburg Size: 200,000 P.E. Mechanical and biological treatment plant designed for nitrification, denitrification and biological and chemical phosphorus removal	Germany	1993-1995	Brochier Group Municipality of Aschaffenburg	Brochier Group Municipality of Aschaffenburg	
Design Construction Supervision	FWO Oberfranken – Long Distance Water Supply System Integration Hüttendorf – Bamberg Design an integrated water supply network covering both supraregional supply associations, Construction Supervision	Germany	1993-1996	Zweckverband Fernwasserversor- gung Oberfranken (FWO)	FWO	approxim. 75,000,000 DM
Conceptual Study Preliminary Design Final Design Tendering Tender Evaluation	Wastewater Treatment Plant Teublitz, Maxhütte-Haidhof Size: 22,000 P.E. Mechanical and biological treatment plant designed for intermittent denitrification, chemical phosphorus removal and simultaneous aerobic sludge stabilization by extended aeration, sludge treatment by mechanical thickening	Germany	1993-1997	Wastewater Association Maxhütte-Haidhof and Teublitz	Wastewater Association Maxhütte- Haidhof and Teublitz	

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Construction Supervision						
Detailed Design Preparation of Tender Documents Construction Supervision	Long Distance Water Supply Pipeline Erlangen-Bamberg with Branch Line Study, preliminary and final design, preparation of tender documents, construction supervision for a long distance water pipeline (length 50 km, branch line 9 km; diameter 600 mm, branch line 300 mm), with appurtenant ventilation shafts, flushing structures, river crossings, and with two water reservoirs (capacity 4,000 + 6,000 m ³), and two pump stations (capacity 300 + 45 l/s).	Germany	1993-1998	Fernwasserversorgung Oberfranken Association, Kronach	Client + Federal State of Bavaria	2,100,000 DM
Final Design and Layout Construction Supervision	Extension and refurbishment of the existing wastewater treatment plant Landshut Size: 260,000 P.E.	Germany	1994-1995	Brochier Group Municipality of Landshut	Brochier Group Municipality of Landshut	
Final Design and Layout Construction Supervision	Wastewater Treatment Plant Dessau Size: 185,000 P.E. Final design and plant layout of the new wastewater treatment plant	Germany	1994-1997	Brochier Group MIDEWA Mitteldeutsche Wasser- und Abwasser GmbH, Halle	Brochier Group MIDEWA Mitteldeutsche Wasser- und Abwasser GmbH, Halle	
Conceptual Study Preliminary Design Environmental Impact Assessment Final Design Tendering	Wastewater Treatment Plant Zeulenroda Size: 70,000 P.E. Mechanical and biological treatment plant designed for intermittent denitrification and biological and chemical phosphorus removal	Germany	1994-1998	Zeulenroda Water Supply and Sewage Disposal Association	Zeulenroda Water Supply and Sewage Disposal Association	
	Wastewater Treatment Plant Danzig Size: 800,000 P.E. Extension and refurbishment of the existing wastewater treatment plant	Germany	1995	City of Danzig	City of Danzig	
Conceptual Study Preliminary Design and Final Design Tendering Tender Evaluation Construction Supervision	Wastewater Treatment Plant Wiesenburg Size: 6,000 P.E. Mechanical and biological treatment plant designed for intermittent denitrification, chemical phosphorus removal and simultaneous aerobic sludge stabilization by extended aeration, sludge treatment by gravity thickening	Germany	1995-1996	Municipality of Wiesenburg	Municipality of Wiesenburg	
Final Design and Layout Construction Supervision	Wastewater Treatment Plant Darmstadt Size: 240,000 P.E. Extension and refurbishment of the existing wastewater treatment plant	Germany	1995-1996	Brochier Group Süd Hessische Gas- und Abwasser AG, Darmstadt	Brochier Group Süd Hessische Gas- und Abwasser AG, Darmstadt	
Construction Supervision	Wastewater Treatment Plant Sulzbach-Rosenberg Size: 60,000 P.E. Mechanical and biological treatment plant designed for nitrification, denitrification and biological and chemical phosphorus removal, sludge treatment by thickening, anaerobic mesophilic digestion, mechanical dewatering and sludge drying	Germany	1995-1996	Municipality of Sulzbach- Rosenberg	Municipality of Sulzbach- Rosenberg	
Water Management and Organisation	Implementation of the Effluent Self Inspection Directive (EKVO) for the common collecting main in the towns of Hasselbach, Laubach, Niederreifenberg and Riedelbach Project management and organisation, surveying work, sewer cleaning, TV inspections of the sewers, data acquisition, schedule preparation, hydraulic sewer network computation, clearance proposal	Germany	1996-1999	Abwasserverband Oberes Weiltal		
Water Management	Implementation of the Effluent Self Inspection Directive (EKVO) in the localities of	Germany	1996-1999	Local Authority		

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Geographic Information System (GIS)	Brombach, Dorfweil and Hunoldstal, Local Authority Schmitten Introduction of a Geographic Information System (GIS) with provision of hardware and software, project management and organisation, surveying work, sewer cleaning, TV inspections of the sewers, data acquisition, schedule preparation, hydraulic sewer network computation, clearance proposal, training			Schmitten / Schmitten im Taunus		
Water Management Geographic Information System (GIS)	Implementation of the Effluent Self Inspection Directive (EKVO) in the town of Schwalbach am Taunus Introduction of a Geographic Information System (GIS), provision of hardware and software, project management and organisation, surveying works, sewer cleaning, TV inspections of the sewers, data acquisition, preparation of as-built and damage diagrams, training	Germany	1997-1999	Stadtwerke Schwalbach am Taunus		
Conceptual Study Preliminary and Final Design Tendering Tender Evaluation Construction Supervision	Wastewater Treatment Plant Oberes Zenntal Size: 14,000 P.E. Mechanical and biological treatment plant designed for pre-denitrification and chemical phosphorus removal, sludge treatment by gravity thickening and anaerobic mesophilic digestion	Germany	1997-2000	Wastewater Association Oberes Zentral	Wastewater Association Oberes Zentral	
Project Management and Organisation Water Management Geographic Information Systems (GIS)	Registering and Assessing the condition of the Sewer from Großer Feldberg to Niederreifenberg Project management and organisation, sewer cleaning, TV inspections of the sewers, data acquisition, condition analysis, schedule preparation, clearance concept and clearance proposal	Germany	1999	Wasserverband Großer Feldberg		
Project Management and Organisation	Implementation of the Effluent Self Inspection Directive (EKVO) in the districts of Eddersheim, Hattersheim and Okriftel Project management and organisation, surveying works, sewer cleaning, TV inspections of the sewers, data acquisition, schedule preparation, hydraulic sewer network computation, clearance proposal, aerial reconnaissance, training.	Germany	1999-2000	Stadtwerke Hattersheim am Main, Main-Taunus-Kreis		
Project Management and Organisation Water Management Geographic Information Systems (GIS)	Implementation of the Effluent Self Inspection Directive (EKVO) Introduction of a Geographic Information System (GIS), project management and organisation, surveying works, sewer cleaning, TV inspections of the sewers, data acquisition, preparation of as-built and damage diagrams, hydraulic sewer network computation, clearance proposal, training	Germany	1999-2001	Stadt Steinbach Hochtaunuskreis		
Surveying and Detailed Design	Water Supply Burglengenfeld Integration of the new well V The new well no. V (located south of the already existing wells no. III and no. IV) of the city of Burglengenfeld had to be supplied with a borehole shaft incl. All related installations, amongst others a submersible pump and a raising main. A connection main had to be designed from the well to the elevated tank of well no. III. At the connection point to the existing main of the elevated reservoir an additional disinfection / dozing plant had to be designed to regulate and control the water dozing.	Germany	2000-2001	Municipal utility of Burglengenfeld	City of Burglengenfeld	100,700 USD
Preliminary and Detailed Design	Water Supply Neustadt / Coburg Drill a new well in order to ensure the water supply of the northwestern part of the cities. Design a respective de-acidification and erected approx. 300 m south of the well, Design of the borehole shaft and the borehole incl. all related installation.	Germany	2001-2002	Municipal utility of Neustadt/Coburg	Cities of Neustadt and Coburg	91,000 USD
Conceptual Study Preliminary Design Final Design	Wastewater Treatment Plant Memmelsdorf Size: 19,000 P.E. Extension and refurbishment of the existing wastewater treatment plant.	Germany	2001-2002	Municipality of Memmelsdorf		

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Detailed Design Preparation of Tender Documents Construction Supervision	Potable Water Treatment Plant Mehderitzsch Preliminary and final design, preparation of tender documents, construction supervision for the rehabilitation and extension of the existing potable water treatment plant (capacity 2,100 m ³ /d).	Germany	2003-2005	Torgau Water Supply and Sewage Disposal Association	Client	140,000
Detailed Design Preparation of Tender Documents Construction Supervision	Rainwater Retention Structure and Pump Station Fuerth Preliminary and final design, preparation of tender documents, construction supervision for a rainwater retention structure being constructed as a sewer channel (Dragon profile 1600 x 2200 mm, length 1300 m), with appurtenant pump station (capacity max. 160 l/s) and pressure discharge pipeline (length 1900 m)	Germany	2003-2008	City of Fuerth	Client	approx. 800,000
Hydrogeology Feasibility Study Studies	Regional Solar Programme, Phase II Feasibility Study for the national component of the programme Baseline Survey & Assessment of Demands, Pre-selection of villages (socio-economical technical/hydrogeological aspects), Socio-economical and Economical Studies, Hydrogeological Studies, Technical Studies (dimensioning, costing), Studies concerning the improvement of existing facilities (from RSP I), Institutional Studies (organisation, communication, legislation, etc.), Preparation of implementation, Analyses on sustainability and definition of parameters for the follow-up	Guinea Bissau	2001-2002	Ministère de l'Economie et des Finances, Ordinateur National du FED	EU IDF A/C No. 8.acp.gub.031	80,000 USD
Works Supervision and Monitoring Hydrogeology Sanitation and Hygiene	Water Supply in the Macenta Region Siting of boreholes, Supervision and monitoring of drilling works for 300 boreholes; equipment/installation of sites, hydrogeological and geophysical survey, animation and sensitization of the population for the private management of water sources; application of hygiene and purification measures, training, capacity building, technical and financial monitoring for the project, organization of the works.	Guinea	2001-2003	SNAPE, Ministry of Energy and Water Development	BADEA	1,000,000 USD
Study on technical and economical Design	Wastewater Treatment Plant Reykjavik-Myrargata Size: 175,000 P.E. The municipality intended to build a second WWTP for the city of Reykjavik which should be similar to the first one, Myrargata. Therefore a study was needed to evaluate the technical conception of the existing plant. Based on verifications of design criteria and recalculations of all process computations the study provides improvement proposals.	Iceland	1998	Municipality of Reykjavik	Municipality of Reykjavik	
Procurement Administration	Humanitarian Aid for the Iraq Population Supply and Delivery of PVC-pressure pipes Procurement, supply and delivery of all goods, administration and documentation	Iraq	1995-2001	GCWS, Bagdad		3,500,000 USD Project value
Detailed Design Works Supervision Studies Technical Assistance	Programme AEP KfW VI for the preparation of Water Supply Systems detailed engineering design in various cities in Ivory Coast and technical assistance for population education and works supervision Technical studies for 42 urban centres located throughout Ivory Coast, existing boreholes pumping tests, drilling works supervision, detailed engineering designs, water supply systems construction works supervision, technical assistance in education	Ivory Coast	1992-2006	Ministère d'Etat, Ministère des Infrastructures Economiques	KfW	12,000,000 EUR
Detailed Design Preparation of Tender Documents Works Supervision Community Participation Organizational and Financial Management	Water Supply to 42 secondary centres, Programme KfW VI (KfW 6-1: 18 centres, KfW 6-2 : 14 centres, KfW 6-3 : 10 centres) Selection of the centres, inventory of existing data, socio-economic study, data collection, feasibility study, preliminary design, final design, elaboration of tender documents, works supervision, capacity building / institutional development, training / support in management, O & M, etc, community mobilisation / FMP / hygiene education	Ivory Coast	1996-2005	Ministère d'Etat, Ministère des Infrastructures Economiques	KfW	4,800,000 USD

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Detailed Design Preparation of Tender Documents Works Supervision Hydrogeology Community Participation Organizational and Financial Management Feasibility Study	Improved Village Water Supply – Improvement of 120 water supply systems Programme KfW VIII Realisation of small water supply systems in 120 villages with a borehole yield of > 3 m ³ /h. Electrification, installation of submersible electric pumps, 2-4 public drinking fountains, distribution networks and reservoir. Selection of the centres, Inventory of existing data, Socio-economic study, Data collection, Feasibility study, Preliminary design, Final design, Elaboration of tender documents, Works supervision, Capacity building, Institutional Development, Community Mobilisation and Participatory Planning, Hygiene Education & Sanitation Measures, Support/ training in Management, O & M, etc.	Ivory Coast	1998-2005	Ministry of Economic Infrastructures, Water Department	KfW	2,800,000 USD
Master Plan Tender Documents Detail Study	Three Towns Sanitation Project (Daloa, Gagnoa and San Pedro) The elaboration of a master plan and tender documents concerning the sanitation of three towns (Daloa – 170.000 inhab, Gagnoa – 110.000 inhab. And San Pedro – 130.000 inhab.) in the southwest of Ivory Coast. Preliminary study and seminars; Sanitation master plan for all three towns; Detail study and tender documents for emergency works	Ivory Coast	2001-2002	Ministry of Construction and Urbanism	African Bank for Development	1,000,000 EUR
Feasibility Studies Preliminary Design Data Collection and Review Site Investigation	Water Loss Reduction Programme Karak Consulting Services for Feasibility Study Feasibility Studies, Data collection and review, Site investigation, Pilot area studies, Maps and Drawings, Hydraulic Modelling, Economic and Institutional Analyses / Socio-economic Impact, Environmental Impact Assessment and PSP, System finances, Development of investment priorities, Investigation of private sector participation, On-the-job training of staff and proposals for continuing training throughout the project period, Reporting, Preliminary Design	Jordan	2003-2004	Ministry of Water & Irrigation of Jordan	KfW	995,000 USD
Preliminary and Final Design Supervision Master Plan	Water Supply, Dams and Reservoir Studies, master plans, site investigations, preliminary & final design, supervision	Kenya	1975-1996	Ministry of Water Development, National Water Conservation & Pipeline Corporation and various Municipalities	Government of Kenya, World Bank	
Design Tender Documentation Construction Supervision	Extension and Rehabilitation of Malindi WS Study, design, tender documentation, construction supervision	Kenya	1980-1989	Ministry of Water Development	KfW/ Government of Rep. Of Kenya	22,000,000 DM Project Value
Design Tender Documentation Master Plan Supervision Assistance during Tendering	Municipality of Malindi, Drainage & Sewerage Master Plan Update Study Study, master plan update, design, tender documentation, assistance during tendering, supervision	Kenya	1986-1990	Ministry of Local Government/ Municipal Council	Government of Kenya	1,950,000 USD Project Value
Design Master Plan Study Tendering Works Supervision	Water and Sanitation Study and Master Plan, Kisumu – Lake Victoria Study, master plan, IWP detailed design, documentation, tendering, works supervision	Kenya	1986-1991	Kisumu Municipal Council/Ministry of Local Governm.	KfW	43,600,000 EUR Project Value
Study Survey Hydrology and Hydraulics of the natural	Nairobi City Drainage & Flood Relief Study Study of the entire existing drainage system of the city including flood hydrology and flood flow projections and conveyance, bridge and culvert and hydraulic capacity estimates.	Kenya	1987-1989	Nairobi City Council	KfW -Study only-	800,000 DM Project Value

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and manmade drainage network Study & Design	Baricho Intake Study for the Sabaki Water Works Seismic survey, exploratory drilling, field investigations and study & design with the Hydraulic Model Study by Leichtweiss Institute	Kenya	1988-1993	Ministry of Water Development, National Water Conservation & Pipeline Corporation	KfW	800,000 EUR Project Value
Feasibility Study Preliminary Investigations Aerial Survey Cost Comparison	Area of Bura Irrigation Gravity Deviation Study of Tana River Waters Hydro-agricultural development, irrigation and river hydraulics: feasibility study, preliminary investigations, aerial survey, cost comparison of alternatives for the exploitation of about 4.000 ha to be irrigated; cost-benefit analyses, technical executional studies, survey of the catchment area, study on two options for the catchment installations on Tana River, geological and hydrological studies.	Kenya	1989-1990	Ministry of Agriculture	Government of Kenya (National Budget)	150,000 USD
Detailed Design Tender Documents Contract Supervision	Nairobi West Sub-Station – Flood Protection Scheme Assessment, detailed design, tender document production, assistance during tendering and contract supervision	Kenya	1989-1991	Kenya Power & Lighting Company (KPLC)	Client	1,300,000 USD Project Value
Design Study Environmental Assessment Tender Documentation	Catchment Protection and Erosion Control – Olkaria, Rift Valley Province of Kenya Design, tender documentation	Kenya	1991	Kenya Power Company	Kenya Power Company	2,000,000 DM Project Value
Surveys	Second Mombasa Coastal Water Supply, Sabaki Water Works Augmentation and Rehabilitation Project, groundwater augmentation component Detailed geological mapping, seismic and resistivity surveys, confirmatory exploratory drilling, test pumping, and analysis of results, monitoring of ground and surface water levels, development, testing and proving of groundwater computer model, and its use to predict aquifer potential.	Kenya	1993-1997	National Water Conservation & Pipeline Corporation	IDA	500,000 USD
Detailed Design Preparation of Tender Documents Electromechanics Supervision	Second Mombasa Coastal Water Supply, Sabaki Waterworks Rehabilitation and Augmentation (inclusive of the pipeline Sabaki to Mombasa) Detailed investigation of existing condition of pumping stations, treatment works, reservoirs and pipelines, design of refurbishment measures, environmental impact assessment, design of well fields, design of augmentation measures, electrical mechanical investigations & designs, tender document preparation, evaluation of tenders, supervision of implementation.	Kenya	1993-1998	National Water Conservation & Pipeline Corporation	IDA	2,000,000 USD
Design Tender Documents	Masinga Kitui Water Supply Design review, tender document review, design modifications, detailed design, structural recalculation, CAD construction drawings, hydrographic survey, assistance and advice during construction.	Kenya	1994-1997	Sogea/ PMC (Austria) Ltd	Austrian Aid	250,000 USD
Design Tender Documentation Evaluation & Contract Supervision	Environmental Impact Assessment of the Rehabilitation & Augmentation of the Sabaki Water Works Environmental Impact Assessment – other services included, study, seismic investigations, exploratory drilling, design, tender documentation, evaluation & contract supervision	Kenya	1994-1998	National Water Conservation & Pipeline Corporation	World Bank (IDA)	18,000,000 USD Project Value
Organizational and Financial Management	Malindi Water Supply – Service Contract A service contract to improve revenue collection and water management within the Malindi Area of the Mombasa and Coastal Water Region. Included the optimisation of	Kenya	1995-1997	National Water Conservation & Pipeline	IDA	700,000 USD

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Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	meter reading based bills, reduction in time between reading and billing from more than three months to two weeks, development of new PC based billing/ accounting software, introduction of bulk metering, introduction of routine maintenance, more rapid and permanent attendance to bursts and leaks, introduction of consumer services, performance monitoring, improved supply, computerisation of previous five years of billing record to facilitate account reconciliation for the approx. 4000 consumers, collection of historic debt finally computed as amounting to about USD 0.8 mio, minimising of commercial losses etc. Technical managerial control for water area, financial management, water losses reduction, development & proving of billing/ accounting software, introduction of quality control, introduction of consumer relations, reconciliation of historic accounts, introduction of routine maintenance including unaccounted-for-water (UFW), re-organisation of area staffing.			Corporation		
Situation Assessment Pre-Feasibility Study (Master Plan) Feasibility Study	Nyeri Water Supply Feasibility Study & Design Situation assessment, pre-feasibility study (master plan), feasibility study for stage I project	Kenya	1996-1998	Ministry of Local Government and Nyeri Municipal Council	KfW (90%) GoK (10%)	600,000 USD
Detailed Design Preparation of Tender Documents	Mombassa Water Supply and Sanitation Project Preparatory studies and design for Mzima Pipeline Rehabilitation, Marere pipeline replacement and Tiwi aquifer final exploitation. Design review, confirmatory field investigations, detailing of proposals, project costing, tender documents, and drawings for Mzima Springs Pipeline Rehabilitation, project proposal report	Kenya	1998	National Water Conservation & Pipeline Corporation	IDA	80,000 USD
Investigations Outline Design Hydrology Hydraulics	Reinstatement of the C 112 Garsen – Witu – Lamu Road Investigations, hydrology, hydraulics, survey, outline design, costing of reinstatement works	Kenya	1998	Ministry of Works	KfW	approxim. 7,000,000 EUR Contract Value
Design Tender Documents Supervision Service	El Nino Emergency Project (ENEP) Site investigations, design, tender documentation & evaluation, supervision services	Kenya	1999-2001	Project Management Unit, Office of the President	IDA / AfDB	950,000 USD
Detailed Design Preparation of Tender Documents Construction Supervision	Urban Water Supply Malindi – Reticulation Augmentation Measures Field work update, design review, detailed engineering, drawings, prequalification of tenderers, tendering and evaluation, supervision services	Kenya	2000-2003	National Water Conservation & Pipeline Corporat.	KfW	650,000 USD
Financial Management	The Sabaki Water Project, Malindi Water Area – Agency Management Following the improvements in revenue collection efficiency and reduction in physical losses, as a result of the 1995-97 IDA subsidised service contract between Gauff and NWPC and the November 1999 tariff updating to 1994 monetary values, a self sustaining Agency (Management Contract) to build on that service contract which improved revenue collection and water management capacity within the Malindi Area of the Mombasa and Coastal Water Region. The project is also to include the utilisation of Donor investment funds for strengthening of the reticulation network, reduction of physical losses by a programme of consumer connection replacement and the enhancing of other aspects of the water utility. To ensure the perfection of the project, the staff is very well trained. Managerial control for the Area, financial management, meter reading/billing/ accounting, quality control, further enhancement of consumer relations, finalisation of	Kenya	2000-2004	National Water Conservation & Pipeline Corporation	Agency Services & O&M- from Area Revenue Capital Works Improvement – KfW	3,900,000 USD 2,900,000 EUR

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	reconciliation of historic accounts, continuation of routine maintenance, rationalisation/reduction of area staffing, continuation of GIS development, establishment of full MIS.					
Preliminary Design Works Detailed Design Construction Supervision	Hydro Agricultural Development of South Lebanon Irrigation and Water Supply Scheme Conveyor 800, Phase I Preliminary design works, detailed design, tendering, construction supervision	Lebanon	2003-2005	Council for Development and Reconstruction	Arab Fund/ CDR	1,420,000 USD
Detailed Design Preparation of Tender Documents Works Supervision Community Participation Financial Management	Water Supply Rehabilitation of six Centres Rehabilitation of the water supply to 6 semi-urban centres (Kangaba, Nara, Djenné, Douentza, Koro and Bankass). The project aimed at the improvement of health by supplying drinking water to the population by means of rehabilitated water supply systems and at the organisation of the population in consumer associations in order to perpetuate the system by decentralised management. Selection of the centres, Inventory of existing data, Pump tests, Socio-economic studies, Preliminary and final design, Tender documents, Assistance in evaluation of offers, Works supervision, Community Mobilisation / Participatory Planning / FMP, Capacity building measures, Installation of a technical assistance unit, Technical and financial audit, Training O & M, Creation of institutional consultancy / capacity building	Mali	1995-1997	Direction Nationale de l'Hydraulique et de l'Energie	KfW	1,000,000 USD
Detailed Design Preparation of Tender Documents Works Supervision Hydrogeology Community Participation Organizational and Financial Management	Water Supply Programme – Mali North The project consists of two components: - Urban water supply to the population of 10 centres: N'Gourma, Léré, Youvarou, Diré, Bamba, Bourem, Ansongo Ménaka, Tassalit and N'Goundam - Rural water supply to villages of more than 400 inhabitants situated within a radius of 100 km from the centres, by means of 180 modern water points. And based of a self-managed operation system. Water supply to 9 semi-urban centres & 120 boreholes, equipped with 101 hand pumps and 19 maintenance free DC solar pumps in the 6 th , 7 th and 8 th regions Socio-economic and hydrogeological studies, Community Mobilisation and Planning, Hygiene Education, Realisation of supplementary boreholes, Preparation of preliminary design, Assessment of power supply options, Detailed design and tender documents for the water supply of 10 centres, including 3 solar powered semi-urban water supply systems, Training in management and management support, Assistance in evaluation of the tender documents, Works supervision, Motivation and assistance during general meetings in the centres, Technical and financial follow-up	Mali	1996-2002	Direction Nationale de l'Hydraulique et de l'Energie	KfW	4,500,000 USD
Financial Management	Consultancy Unit for the Operation of Water Supply Schemes in Towns of Mali (CCAEP) Due to frequent breakdowns of water supply schemes in rural and semi-urban centres in Mali and an endangered viability of these schemes, Gauff Ingenieure was appointed to set-up a consultancy unit, providing control of the technical and financial management of the systems (audits), technical assistance, training and procurement of consumables and spare parts. The functioning unit enjoys a vast acceptance in more than 50 centres in Mali and guaranties the operation without major breakdowns of the systems. Future costs for repairs or replacements are included in the water tariffs. Expenditures of the scheme operators are controlled by the unit. The unit –as established by Gauff Ingenieure- has meanwhile been privatized and	Mali	1997-2000	Direction Nationale de l'Hydraulique	KfW	325,000 USD

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Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	<p>similar regional units will be established in various parts of the country. The operation of these units will also be provided by the private sector. The services of the unit, resulting in a good commercial operation of the various water supply schemes, enhance the possibilities for a future privatization of the schemes and contribute to the sustainability of these schemes.</p> <ul style="list-style-type: none"> - Training: Technical Training by the Contractor, Technical Training by the Consultant / Training Centres and Accountancy Training by the Consultant - Commercial Assistance: Capacity building measures, Calculation of necessary water tariffs and Follow-up / control of revenue collection - Software: Health/hygiene education in the centres, Assistance during meetings in the centres (e.g. general assembly) and Assistance for FMP - Technical Assistance: Consultancy for future investments, Repairs, replacements, Utilization of consumables, Technical follow-up of operation 					
<p>Detailed Design Preparation of Tender Documents Works Supervision Hydrogeology Community Participation Organizational and Financial Management</p>	<p>Small Town Water Supply in 10 semi-urban and rural centres in the 2nd Region of Mali (Koulikoro) + Centres Nara and Koro Small Towns Water Supply in 10 semi-urban centres, including supplementary boreholes and extension of the centres Nara and Koro. Socio-economic and hydrogeological studies, Community Mobilisation and Planning, Hygiene Education, Realisation of supplementary boreholes, Preparation of preliminary design, Assessment of power supply options, Detailed design and tender documents for the water supply of 10 centres, including 3 solar powered semi-urban water supply systems, Study for the extension to Nara and Koro, Training in management and management support, Assistance in evaluation of the tender documents, Works supervision, Motivation and assistance during general meetings in the centres, Technical and financial follow-up</p>	Mali	1997-2002	Direction Nationale de l'Hydraulique et de l'Energie	KfW	1,250,000 USD
Feasibility Study	<p>Feasibility Study – Mobilisation of the groundwater resources for the improvement of water supply in rural and semi-urban areas in the 1st Region of Mali Feasibility study on provision of drinking water for 10 to 15 centres (with an option of 20 supplementary centres) by various water supply facilities in the 1st region of Mali; Preparatory hydrogeological, geophysical, socio-demographic and socio-economic studies (desk and field studies) for 100 rural and semi-urban centres in the 1st Region of Mali as well as elaboration of the cost estimates and the budget for the realisation phase (detailed technical studies, drilling campaigns, capacity building, public relations, construction of water supply schemes)</p>	Mali	2001-2002	Direction Nationale de l'Hydraulique DNH		78,000 USD
<p>Design Tender Documents Study Works Supervision</p>	<p>Programme for the Mobilization of Water Resources in the First Region of Mali Hydrological and geophysical studies, elaboration of tender documents for the borehole campaign, study and design of water supply schemes, elaboration, development plans for the centres, technical assistance supervision of works (borehole and WS), management of the programme</p>	Mali	2003-2006	Ministry of Mines, Energy and Water	KfW	22,000,000 EUR
<p>Assessment Technical Assistance</p>	<p>Study on Improvement of Irrigation Management System for the Office Régional de Mise en Valeur Agricole, Loukkos Irrigation: assessment, analysis and typology of irrigation systems; planning for improvement of the management of the irrigation system; follow-up of evaluation; execution of planning schedule; technical assistance</p>	Marocco	1996-2000	Ministère d'Agriculture et de la Mise en Valeur Agricole	KfW	500,000 USD
Feasibility Study	Development Study of Koulou Basin	Niger	1990-1994	Ministère de	BOAD	300,000

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Detailed Design Preparation of Tender Documents for the Regional Development of 1.500 ha	Agricultural and animal production including social and sanitary measures, elaboration of an organisational structure			l'Agriculture et de l'Elevage		USD
Feasibility Study Engineering Design Construction Supervision	Water Supply and Dam for the New Federal Capital The Usuma River, 20 km north of Abuja, was selected and a study undertaken to find the most suitable site for the construction of a dam. The project consists of 3 Phases: Phase I: Preliminary studies Phase II: Feasibility study Phase III: Design stage, detailed engineering, cost estimates and elaboration	Nigeria	1978-1985	Federal Capital Development Authority	Federal Government of Nigeria	550,000,000 DM Project Value
Feasibility Study for RWS	Multistate Agricultural Development Project Rural Water Supply (RWS) Component Studies were carried out for the eight states Ogun, Bendel, Plateau, Benue, Imo, Anambra, Cross River and Akwa Ibom with a total population of 30 mio. Review and analysis of the present situation, hydrological -, hydrogeological – and geophysical investigations and socio-cultural analyses and studies.	Nigeria	1988-1989	Ministry of Agriculture, Water Resources and Rural Development	World Bank	68,000,000 USD Project Value
Study Underground Exploration Engineering Design	Pedan River Dam Study, underground exploration, engineering design	Nigeria	1991-1992	Strabag Intern./ Federal Capital Development Authority		50,000,000 DM Project Value
Feasibility Study Detailed Design Preparation of Tender Documents Construction Supervision Hydrogeology	National Water Rehabilitation Project Rehabilitation of water supplies for 30 centres in the States of Lagos, Oyo, Osun, Ogun Feasibility study, hydrological -, hydrogeological – and geophysical studies in order to determine ground- and surface water potentials, environmental impact assessment, detailed design, economic evaluation of alternatives, tender documentation, assistance during tender and evaluation of offers, supervision of construction, unaccounted for water programme with repair of leaks, workshops and training programme, procurement of goods	Nigeria	1992-2001	Federal Ministry of Water Resources and Rural Development	IBRD	6,500,000 USD
Preliminary and Final Design Drawings and Tender Documentation.	Otta Ikosi Town Water Supply Study of existing situation, hydrological and hydrogeological investigations, population and water demand projections, reticulation analysis, analysis of alternative water sources, preliminary and final design, drawings and tender documentation.	Nigeria	1995-1998	Lagos State Water Board	IDA	270,000 USD
Detailed Design Preparation of Tender Documents Hydrogeology Organization and Financial Management	Urban Water Supply Birnin Gwari – Detailed Design, Project Management, Supervision Re-assessment of catchment hydrology and dam integrity followed by inclusion of emergency spillway, together with rehabilitation and extension of water supply system from dam, raw water intake, transmission mains, treatment works and distribution, drainage and low cost sewerage. Project conception, project management, hydrological studies, investigations on dam safety, study, design (including FMP with population), tender documentation, tendering, tender evaluation, assistance to negotiations and contract award, construction supervision, procurement of equipment, O+ M schedules and training of Clients Staff, financial management of WS and training, an unaccounted for water programme and leak detection survey	Nigeria	1995-1999	Kaduna State Water Board	KfW	1,680,000 USD
Detailed Design Preparation of Tender Documents Electromechanics Hydrogeology	Rehabilitation and Extension of Urban Water Supply and Sanitation Makurdi Assessment of the possibility to abstract up to 100,000 m ³ /d of groundwater from the alluvial beds of the Benue River, design of a new treatment works for this demand, design of the necessary measures for the rehabilitation and extension of the distribution	Nigeria	1997-1998	Petroleum (special) Trust Fund	Petroleum Trust Fund	420,000 USD

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Financial Analysis	system inclusive of reservoirs and pumping stations. Investigations revealed that because the present river course and the rivers palaeochannel were largely coincident, it was not practicable to tap the full potential of the former channel. However and by developing a well field adjacent to the south bank of the river where moderate depths of alluvial material occurred, approximately half of the desired amount of groundwater was considered to be available for exploitation. Investigate drilling to identify aquifer, drilling of test boreholes, pump test and water analyses, field investigation of existing facilities, digitised mapping, sample population census, water demand assessment, design of treatment works and network, network analyses by computer simulation, economic analyses of alternatives, tender documentation and bill of quantities, cost estimates					
Organizational and Financial Management	Urban Water Supply Birnin Gwari – Technical Training and Commercial Assistance <u>Training/Technical Assistance:</u> Technical Training by the Contractor, Technical Training by the Consultant, Commercial / Financial Management Training by the Consultant, Leak detection/network rehabilitation/UFW-Programme <u>Commercial Assistance:</u> Commercial Assistance to the KSWB in Birnin Gwari, comprising conciliation of debtors, improvement of meter reading activities, - improvement of billing procedures, improvement of collections, review of staff establishment and salary scales, elaboration of a cost-covering tariff proposal, public relation activities, unearthing of illegal connections, improvement of application procedures for new connections, improvement of accountancy, introduction of proper reporting procedures, review of procurement procedures and store keeping	Nigeria	1999-2001	Kaduna State Water Board	KfW	350,000 USD
Institutional Analyses	National Water Rehabilitation Project Coordinating Consultancy for State Water Agencies' Institutional Development Project – IDP in 37 States of Nigeria	Nigeria	2000	Federal Ministry of Water Resources	World Bank	180,000 USD
Detailed Design Preparation of Tender Documents Construction Supervision Hydrogeology	Urban Water Supply Project Gusau, Phase I and II <u>Phase I:</u> Complete rehabilitation of the Intake and Pre-sedimentation facilities at the Gusau Barrage, Complete rehabilitation of the "New" Treatment Plant in Gusau, Expansion / Rehabilitation of the distribution network of the Gusau Water Supply System, Rehabilitation of the Koremar Wanke Dam <u>Phase II:</u> Design of new treatment plant at Bakolori Dam, Design of transmission main from Bakolori to Gusau, Rehabilitation of transmission main from Gusau to Ghafe, Water supply to the towns between Bakolori and Gusau, Completion of left-over water connections along the route. The scope of services for both phases includes works as listed in the stages below: Stage I: Detailed study and preliminary design of the priority works and rehabilitation and provisional expansion works as identified by the Zamfara State. Stage II: Completion of final detailed engineering designs and preparation of bidding documents. Stage III: Invitation of bidders, bid evaluation, contract negotiations and award. Stage IV: Implementation of the works, construction supervision and training of ZSWB personnel.	Nigeria	2002-2004	Federal Ministry of Water Resources	Government of Nigeria	1,500,000 USD
Detailed Design	ZOBE Water Supply	Nigeria	2003-2006	Federal Ministry	Federal	800,000

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Preparation of Tender Documents Construction Supervision Electromechanics	The Project is proposed as a regional water supply system to be executed in two phases with raw water abstraction from the existing Zobe Dam and an intended treatment plant capacity of 75,000 m ³ /day. The objective of the phase I works is the provision of potable water supply (37,500 m ³ /day) to some 20 communities across eight local government areas, stretching from Dutsin-Ma to Kankiya, south east of Katsina at a distance of approximately 95 km. The objective of the Phase II works is the improvement and augmentation of the potable water supply to Katsina town (appr. 120 km) by treatment and pumping of an additional 37,500 m ³ /day from the proposed Zobe treatment plant, as a part of the long-term water supply strategy of Katsina town. Stage I: Design audit of works done to date, including detailed study and review of all engineering design, inspection and verification of conditions of existing structures, culminating in outline design for the completion of works. Financial audit and valuation of previous works done as well as audit of all financial transactions and determination of the financial status of the project. Stage II: Detailed engineering designs and preparation of bidding documents for the completion of the entire works for both phases. Stage III: Contractor's quotation, evaluation, contract negotiation and award. Stage IV: Implementation of the completion works and the subsequent construction supervision.			of Water Resources	Government of Nigeria	EUR
Organisation and Technical Coordination	Technical Environmental Protection in the field of Water Resources Management Organisation and technical coordination	Poland	1990		Gauff Ingenieure	
Data Collection Plan Formulation Construction and Rehabilitation Proposals Investment Planning	Wastewater Disposal and Sewage Sludge Treatment in the Gdansk and Puck Bay Gauff Ingenieure was engaged to develop a plan for wastewater removal in the bay area. Phase I: Data collection Phase II: Data evaluation Phase III: Plan formulation Phase IV: Investigations of alternatives for treatment plants and sludge disposal Phase V: Investment planning	Poland	1991-1992	Water Authority Gdansk	German Ministry of Economics	
Feasibility Study	Wastewater Treatment Plant Danzig, Poland Extension and refurbishment of the existing wastewater treatment plant for the Municipality of Danzig, Poland. The existing plant, based on primary sedimentation and flocculation/precipitation had to be enlarged due to higher connection size and demanding process aims. Mechanical and biological treatment plant designed for pre-nitrification and biological and chemical phosphorus removal. Sludge treatment by gravity and mechanical thickening separated for primary and surplus sludge, anaerobic mesophilic digestion and mechanical dewatering. Gas utilization by block heating works. DESIGN CRITERIA : Dry weather flow : 180,000 m ³ /d BOD ₅ -Load : 48,000 kg/d Size : 800,000 P.E.	Poland	1995	City of Danzig	City of Danzig	
Financial Management Master Plan Feasibility Study	Master Plan for Water and Wastewater Management in Upper Silesia Phase 1: Assessment of Existing Situation: extensive collection and review of all existing data, design of data base system, entering of existing data for the different study	Poland	1994-1996	Republic of Poland	European Communities under the	3,000,000 DM Project Value

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	components into the data base, training of local staff Phase 2: Master Plan: Development of Master Plan for water supply and sewage collection, treatment and disposal within the study area up to the year 2020 Phase 3: Feasibility Study of First Stage Investment Programme: Study, based on the Master Plan, covering investments up to the year 2000 for water supply and sewage disposal, including cost estimates, capital, operation and maintenance costs for future water supply and sewage disposal schemes.				PHARE-Programme	
Financial Management	Overview of the Billing Software Implementation – ELECTROGAZ – Determination of capabilities of IT staff and inspection of existing hardware on site and commencement of training of EBC specialist; software procurement; software installation and set-up of user access security for water and electricity systems; initial training for senior IT staff; system administration training; data capture and conversion – water / electricity; end user training; initial test phase and parallel trial run; live run and exception reports/backstopping/revisions; customisation of reports; preparation of final user and administration manuals; support services period.	Rwanda	2000	ELECTROGAZ	ELECTROGAZ	360,000 USD
Conceptual Study Preliminary Design Environmental Impact Study	Wastewater Treatment Plant Slovenj Gradec Size: 20,000 P.E. Mechanical and biological treatment plant designed for inmittend denitrification, chemical phosphorus removal and simultaneous aerobic sludge stabilization by extened aeration. Sludge treatment by mechanical thickening and mechanical dewatering by chamber filter press. The dewatered sludge is finally disposed at a landfill.	Slovenia	1998-2000	Municipality of Slovenj Gradec	Municipality of Slovenj Gradec	
Preliminary and Final Design Supervision of Construction Tendering	Sigi River Dam for Water Supply to Tanga Town Study, preliminary design, site investigations, final design, supervision of construction tendering, catchment study	Tanzania	1975-1986	Ministry of Water/ National Urban Water Authority	KfW	19,000,000 EUR Project Value
Preliminary and Final Design Tendering Supervision	Arusha Town Water Supply Study, preliminary design, drilling superintendence, immediate works, and in joint venture final design, tendering and supervision of construction	Tanzania	1979-1990	Ministry of Water/ National Urban Water Authority	KfW	25,000,000 EUR Project Value
Design Tender Documentation Supervision Force Account Operation and Maintenance	Tanga Sewerage Rehabilitation I.M.P. Survey of sewer network, inspection by CCTV, establishment of a relational data base, unblocking, cleaning, repair and rehabilitation, optimisation of collection method for solid waste incl. Supply of spares for collection vehicles, opening of a new dumping ground and introduction of controlled tipping.	Tanzania	1991-1994	Ministry of Water, Energy and Minerals	KfW	2,500,000 DM Project Value
Detailed Design Preparation of Tender Documents Management and Supervision of Water Supply networks Hydrogeology Community Participation	Study on and Improvement of Rural Water Supply Ngara/ Karagwe Districts The work involved study and improvement of rural water supply and sanitation to the indigenous people affected by the influx of refugees from the neighbouring countries, involving rehabilitation of existing water systems, construction of shallow and deep wells, and improvement of springs and sanitation. The works were undertaken by adopting force account construction procedures. Drilling of boreholes was undertaken by contractor. Work involved feasibility study, hydrogeological investigation, design, preparation of tender documents for drilling of boreholes suitable for international competitive bidding, tender processing and evaluation. Project management, supervision for rehabilitation of existing water supply network, improvement of springs and sanitation by VIP-latrines, and supervision of drilling work. Capacity Building Measures and the motivation of the communities formed a part of the project.	Tanzania	1996-1998	Ministry of Water	KfW	205,000 EUR

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Detailed Design Preparation of Tender Documents Management and Construction Supervision	Urban Water Supply Programme Tanga Design review, leak detection survey, re-design, production of tender documents and drawing, assistance during tendering, consumer connection survey, work supervision	Tanzania	1996-2003	Tanga Water Supply and Sewerage Authority	KfW	1,200,000 USD
Engineering Design Tender Documentation & Evaluation Contract Supervision	Hydrology, River Hydraulics, Environmental Assessment of the Ikwiriri to Somanga Road Engineering & Economic studies, hydrologic and River Hydraulic Assessment, Environmental Impact Assessment, engineering design, tender documentation & evaluation, contract supervision	Tanzania	1998-2000	Ministry of Works	Kuwait Fund	30,000,000 USD Project Value
Outline Design Detailed Design Tendering Purposes	Geita Water Pipeline Assessment of Clients requirements, outline design for costing and tendering purposes, followed by detailed design after Contract award and advice during construction.	Tanzania	1999-2000	Zakhem International	Ashanti Goldmines Ltd	100,000 USD
Detailed Design Preparation of Tender Documents	Water Supply and Sewerage Services for the City of Dar es Salaam <u>Lease Contract / Commercial and New Works Services</u> Survey, planning, design review, tender evaluation. Contract management (priority works and consumer metering). Operators representation for all Non-delegated Capital Works. Leak Detection. GIS/MIS. Information technology and billing. Commercial Services	Tanzania	2003-2008	DAWASA	IDA / [AfDB / EIB]	2,550,000 USD
Detailed Design Preparation of Tender Documents Construction Supervision	Water Supply and Sewerage Services for the City of Dar es Salaam Consulting Services (Delegated Capital Works) Technical Assistance, Management, IT. Electromechanical component	Tanzania	2003-2008	DAWASA	IDA / [AfDB / EIB]	4,000,000 USD
Technical-, Management- and IT- Service Works Supervision Tender Evaluation Coordination of Design	Supply of Water and Sewerage Services for the City of Dar es Salaam / Lease Contract / Commercial and New Works Services Survey, planning, design review, Contract management (priority works and consumer metering). Operators representation for all Non-delegated Capital Works. Leak Detection. GIS/MIS. Information technology and billing. Commercial Services	Tanzania	2003-2013	DAWASA, (formerly Dar es Salaam Water & Sewerage Authority, now the Asset Holding Company)	IDA / [AfDB / EIB]	2,550,000 USD
Project Preparation and Final Design Tendering and Contract Award Supervision of works	Water Supply and Sanitation Project Sivas Project Preparation and Final Design: data collection, leakage survey, detailed engineering on basis of existing feasibility study, preparation of tender documents Tendering and Contract Award: publication of tenders for supply and construction services, evaluation of offers, assistance to the Client in contract award Supervision of Works: follow-up of supplies, supervision of construction services, follow-up of training component of the Contractors, assistance to the Client in acceptance of supplies and services (incl. Performance tests)	Turkey	01/2005-12/2008	SIBESKI – Municipality of Sivas	KfW	1,200,000
Final Design and Layout Construction Supervision	Wastewater Treatment Plant Ankara Size: 3,900,000 P.E. Mechanical and biological treatment plant designed for nitrification, denitrification and biological and chemical phosphorus removal. Supervision of initial operation phase of sludge treatment	Turkey	1992-1998	Brochier Group Ankara Su Ve Kanalizasyon Idaresi, ASKI	Client	
Design Technical Assistance	Consulting Services for the Rehabilitation and Extension of the Water Network System of the City of Istanbul/Turkey Review of former training activities on leak detection; Inventory of available leak detection equipment; Design of an immediate action program concerning leak detection and reduction of major water losses; Technical assistance of ISKI staff during the action	Turkey	1993-1994	Istanbul Water and Sewerage Administration I.S.K.I.	Client	

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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	program; Elaboration of a Loss Reduction Program; Design of long-term measures for leakage control					
Survey Training	Erzincan Earthquake Rehabilitation and Reconstruction Project in Erzincan/Turkey Update of distribution drawings (scale 1:1000) and preparation of a computerised general map (scale 1:5000); Flow and pressure measurements throughout the whole network; Detailed leak detection survey of the transmission main (12 km length, 800 mm diameter) and of the entire distribution network; a fully equipped measurement van was used for the district measurements; Supply of leak detection and water metering equipment; Installation of water metering equipment at strategic points; Training of staff in operation and maintenance of equipment; Recommendations for repair works with appropriate techniques, material and equipment	Turkey	1994-1995	Republic of Turkey, Prime Ministry	Client	
Feasibility Study	Feasibility Study for the Water Supply Facilities for the Municipality of Kayseri Determination of the total water intake quantity of each of the 12 pumping stations, determination of the pressure situation, especially in the old part of Kayseri, water meter reading campaign in order to determine the average daily water consumption per capita, control of existing network maps, design of long-term measures for leakage control	Turkey	1995	Kayseri Metropolitan Municipality	Client	
Water Supply Analyses	Feasibility Study for Water Supply and Sewerage Kahramanmaraş Size of WWTP: 520,000 P.E. Final stage: 830,000 P.E. Data collection and preparation of as-built drawings for existing water and sewerage systems, water and sewerage analyses, investigation of water losses, analysis of economic and social population structure, cost estimate and proposal of cost covering tariff systems	Turkey	2001-2002	City of Kahramanmaraş	KfW	450,000 EUR Project Value
Feasibility Study Data Collection Site Investigations	Feasibility Study for the gas distribution and billing system for the Municipality of Malatya Data Collection, site investigation, Economical Evaluation according Natural Gas Distribution	Turkey	2001-2002	Municipality of Malatya	Client	
Training and Management Assistance WWTP Isparta	Wastewater Treatment Plant Isparta Size: 240,000 P.E. Performance of basic training of managerial and operational key staff of the wastewater treatment plant Isparta, assessment and adjustment of the staffing schedule, development of working routines and of an operation manual, environmental investigation and assistance in monitoring of industrial wastewater polluters	Turkey	2001-2002	Municipality of Isparta	KfW	
Wastewater Treatment Preliminary and Final Design Tender Documents	Wastewater Treatment Plant Kirikkale Size: 326,000 P.E. Data collection, dimensioning, preliminary and final design, preparation of tender documents for a new wastewater treatment plant, with feeder line, inlet pumping station and discharge pipeline	Turkey	2001-2003	Municipality of Kirikkale	Client	
Supplementary Analyses Feasibility Study	Sewerage Project Kirikkale – Supplementary Analyses and Feasibility Study Analysis of present situation, Institutional analysis, review of project concept, financial and socio-economic analysis, environmental assessment, assessment of project risks, compilation of appraisal documents, project appraisal and finalisation of study report	Turkey	2004-2005	Municipality of Kirikkale	KfW	
Final Design Tendering and Contract Award Supervision of Works	Water Supply and Sanitation Project Sivas Size: 280,000 P.E Project preparation and final design, tendering and contract award, supervision of works	Turkey	2005-2008	Municipality of Sivas	KfW	

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Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Collection and Analysis of Data / Identification of Problems Consideration of Alternatives Household Survey Further Economic Assessments Preparation of a Draft Feasibility Study Report Preparation of a Final Feasibility Study Report	<p>Consulting Services for the Preparation of a Feasibility Study “Sewage Disposal Şanlıurfa”- Turkey The project goal is the reduction of health risks for the population of Şanlıurfa and surroundings. To achieve the project purpose a WWTP shall be erected and the sewage network rehabilitated and enlarged.</p> <p>The project comprises the following major components:</p> <ul style="list-style-type: none"> ▪ Restructuring, improvement and completion of the sewerage network; ▪ Restructuring and rehabilitation of the drainage (storm water) network; ▪ Separation of wastewater and storm water connections (as far as technically and financially viable); ▪ Rehabilitation/extension of existing WWTP (pond system) or construction of a new central wastewater treatment plant at the same or alternative site; ▪ Procurement of operational and maintenance equipment; and ▪ Assistance to the Municipality during the preparatory, implementation and initial operation phases. 	Turkey	2005-2008	Municipality of Şanlıurfa		
Collection and Analysis of Data Digitalisation of the Water Supply, Wastewater and Storm Water Network Assessment of the Water Supply System Assessment of Storm Water System Institutional and Financial Assessment of PEA Definition of Priority Measures and Project Cost Estimation Financial Analysis Socio-Economic Analysis Procurement Plan Environmental Assessment Assessment of Project Risks Preparation of Inception and Supplementary Study Report	<p>Consulting Services for Priority Measures in the Water Supply and Stormwater System Tokat – Turkey The objective of the Project is to assist in ensuring a safe and continuous water supply in the City of Tokat up to the year 2030 with the project measures, thus contributing to the improvement of the sanitary and health conditions of the population of Tokat.</p> <p>The project comprises the following major components:</p> <ul style="list-style-type: none"> ▪ Exchange of well pumps ▪ Installation of automatic control equipment for wells and reservoirs (including measuring and chlorination equipment) ▪ Improvement measures for water treatment at springs and wells (especially to reduce water hardness) ▪ Exchange of cast iron and asbestos cement pipes in older parts of the city (about 100 km) ▪ Equipment for a building for a semi-autonomous municipal organisation for water supply and sewerage services (“TOSKI”). <p>This building will include the equipment for:</p> <ul style="list-style-type: none"> ▪ Technical administration ▪ Maintenance and operation activities ▪ Remote control panel ▪ Workshop ▪ Correction of false storm water drains to the sewerage system 	Turkey	05/2006-08/2006	Municipality of Tokat		
Feasibility Study Preliminary and Final Design Tender Evaluation Construction Supervision	<p>Water Supply and Sanitation Rehabilitation Master plan, feasibility study, preliminary and final design, tender evaluation and construction supervision, tender preparation for supply of goods, procurement services</p>	Uganda	1983-1988	Ministry of Water and Mineral Development	World Bank	48,600,000 DM Contract Value
Final Design	Kampala Water Supply Rehabilitation	Uganda	1985-1989	Ministry of Water and Mineral	EEC	15,100,000 DM

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Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Tender Documents Tender Evaluation Construction Supervision	Phase I: Uprating Gaba water works <ul style="list-style-type: none"> - uprate intake structures, new coarse and fine screens, pen stocks - supply and installation of 3 new raw water pumps including panels - laying a micro strainer bypass - rehabilitation of pumps in the pumphouse - installation of 6 new pumps in the outdoor station - installation of a new backwash-system Phase II: Laying of transmission main and rehabilitation of elevated steel tanks			Development		Contract Value
Design Construction Supervision Tender Evaluation	Kampala Water Supply Expansion Phase I: <ul style="list-style-type: none"> - construction of a new water works Gaba II - installation of a new pipeline - construction of an additional flow control reservoir Phase II: <ul style="list-style-type: none"> - construction of new transmission mains (29 km) - extension of distribution mains by 80 km - construction of 6 storage reservoirs - installation of 4 booster stations - construction of 9 production boreholes - rehabilitation of network in bulk supply areas Technical appraisal study, design, construction supervision, tender evaluation	Uganda	1987-1992	Ministry of Works and Mineral Development	World Bank and EEC	122,000,000 DM Contract Value
Detailed Design Preparation of Tender Documents Management and Construction Supervision	Uganda Second Water Supply Project, Expansion of Urban Water Supply and Sewerage Systems for Kampala, Masaka, Mbarara, Mbale & Tororo It comprised major expansions of the water production and distribution systems, and rehabilitation/ expansion of sewerage systems Design review and tender documents; preparation of construction drawings; issuance, tendering, and evaluation of tender proposals; award; preparation of contract documents, supervision of construction	Uganda	1992-1998	Government of Uganda, Ministry of Natural Resources	IDA	4,700,000 USD
Organizational and Financial Management	Kampala Revenue Improvement Programme Technical and financial management of the day to day operations of the water utility (other than abstraction, treatment and primary pumping, establishment of MIS-system, training	Uganda	1997-2001	National Water and Sewerage Corporation	Financed from water revenues	
Detailed Design Preparation of Tender Documents	Urban Water Supply Kampala – Rehabilitation of Gaba I Water Treatment Works Document review, design review, re-assessment of requirements, re-assessment of treatment processes, detailed design of agreed measures, production of tender documents & drawings, limited environmental assessment, drafting of technical and administrative provisions for implementation	Uganda	1998-1999	National Water and Sewerage Corporation Kampala	European Union	85,000 USD
Water Management Management of Operation and Maintenance	Kampala Revenue Improvement Project Management of Water Sale Activities and Management of Operation and Maintenance (Management Service Contract)	Uganda	1998-2001	National Water & Sewerage Corporation	Government of Uganda	
Feasibility Study Preliminary Design and Final Design Technical Assistance Supply of Goods Construction Supervision Supervision of initial operation phase	Wastewater Treatment Plant Guanta Size: 30,000 P.E. Mechanical and biological treatment plant designed for UASB-process (Upflow anaerobic sludge blanket)	Venezuela	1993-1995	Republic of Venezuela Ministry of Environment	Republic of Venezuela Ministry of Environment	

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Water Supply & Sanitation and Wastewater Treatment Plants

Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
Feasibility Study Preliminary Design and Final Design Technical Assistance Supply of goods Construction supervision Supervision of initial operation phase	Rehabilitation of Wastewater System Puerto la Cruz Phases 1 and 2 Size: 320,000 P.E. Mechanical and biological treatment plant designed for UASB-process (Upflow anaerobic sludge blanket)	Venezuela	1993-1997	Republic of Venezuela, Ministry of Environment MARNR	Government of Venezuela by Export Credit from Germany	
Management and Construction Supervision	Water Supply / Wastewater Disposal for the Islands of Margarita and Coche Engineering services, procurement, supervision of construction and assembly works, project management, technical assistance, arrangement of the funding	Venezuela	1997-1999	Republic of Venezuela, Min. of Environment MARNR	Client	13,700,000 USD
Detailed Design Management and Construction Supervision	Metropolitan Water Supply Caracas – System Tuy IV General design, detail design for electromechanical engineering and civil works, procurement services for equipment and materials, technical assistance to the client in management, administration and supervision of works	Venezuela	1997-2000	Republic of Venezuela, Min. of Environment MARNR	Client	46,950,000 USD
Detailed Engineering Detailed Design Management and Construction Supervision	Rehabilitation of Water Supply and Wastewater Disposal - Puerto Cabello-Morón Project management, supervision of construction, technical assistance, procurement of the technical equipment, arrangement of the funding	Venezuela	1998-2001	Republic of Venezuela, Min. of Environment MARNR	Client	40,000,000 USD
Feasibility Study Design Tender Supervision	Water Supply for Seven Towns Feasibility study included separate reports on the existing reticulation system of each town and hydrogeological investigations into ground water recourses inclusive of an exploratory drilling and pump testing programme. The construction works included: - new river intakes and raw water mains - rehabilitation of existing treatment units - new operation building - new raw and treated water pumping plants	Zambia	1978-1990	Ministry of Agriculture and Water Development, Director of Water Affairs	KfW	28,000,000 DM Project Value
Feasibility Study Design Tender Supervision Assistance in Repair/Operation	Urban Water Supply Chipata The project based on the results of a feasibility study. A scheme was designed with following components: - Water intake tower in impounding area accessible through tunnel dam - Raw water pumping station to treatment works - Conventional treatment by flocculation, sedimentation and rapid filtration - High lift pump station - Supply of a larger informal housing area by a separate system from a spring - Improvements to the distribution system by adding lines and interconnections	Zambia	1978-1990	Ministry of Decentralisation	KfW Government of Rep. of Zambia	42,000,000 USD Project Value
Hydrogeology Community Mobilisation	Rural Water Supply Central Province During the first implementation phase (1987 to 1989) over 300 wells and boreholes were constructed or rehabilitated in Mkushi and Serenje Districts with establishment of a maintenance programme based on user's participation. The second phase (1990 to 1992) covers the districts of Mumbwa and Kabwe rural with about 300 wells and boreholes to be rehabilitated /constructed with even more emphasis on introduction and monitoring of a maintenance programme and the development of a health and hygiene campaign with assistance in its implementation by the local authorities within the framework of existing related programmes and activities. The third phase (1992 to 1998) covers the districts of Kapiri-Mposhi and additional demand in Kabwe rural (Chibombo) and Mumbwa districts with about 500 wells and	Zambia	1982-1998	Ministry of Agriculture and Water Development, Department of Water Affairs	KfW	5,200,000 USD



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Specific project-related qualification	Project description	Country or Region	Project Duration	Client	Financing Institute	Consulting Fee EURO
	boreholes. The programme was terminated in 1998. Data collection and review, Field investigation, Project preparation, Hydrogeological investigations, Geophysical siting of water points / Borehole siting, Supervision of drilling by contractors, Implementation of construction in force account and self help, Implementation of a sustainable operation and maintenance system based on user's participation including capacity building, Population/community motivation and mobilisation, Development of health and hygiene campaigns with assistance in its implementation by the local authorities within the framework of existing related programmes and activities, Water quality monitoring					
Detailed Design Preparation of Tender Documents Management and Construction Supervision Organizational and Financial Management	District Centres Water and Sewerage Rehabilitation Project (Water Supply for Choma, Monze, Livingstone and Kalomo & Sewerage for Kafue and Livingstone) Field investigations and update of designs and tender documentation, support in tender stage, construction supervision and training of client's staff, institutional support and assistance in operation, maintenance and financial matters inclusive of on-the-job training	Zambia	1992-1998	Ministry of Local Government and Housing	African Development Bank	1,070,000 USD
Detailed Design Preparation of Tender Documents Management and Construction Supervision Hydrogeology Organizational and Financial Management	Urban Water Supply and Sewerage Rehabilitation and Expansion City of Solwezi Feasibility study, hydrological and hydrogeological assessment, design, tender documentation, supervision of drilling services, assessment of institution for commercialization.	Zambia	1995-1997	Ministry of Local Government and Housing	KfW	1,070,000 USD
Feasibility Study	Study and Implementation of Rural Water Supply for Eastern Province of Zambia Data collection, field investigation, project preparation, hydrogeological investigation, borehole siting, supervision of drilling by contractors, implementation of construction in force account, implementation of a maintenance programme including capacity building, population/community motivation and mobilisation, health and hygiene campaign, water quality monitoring. The work consists of the following phases: Phase 1: Feasibility Study Phase 2: Implementation of works in 8 districts	Zambia	1998-2001	Ministry of Energy and Water Development, Department of Water Affairs	KfW	3,100,000 USD
Preparation of Tender Documents Management and Construction Supervision Hydrogeology	Water Supply and Sanitation North Western Province and Urban Water Supply Solwezi Project preparation, hydrology and hydrogeology, final design, tendering and evaluation, supervision services, institutional training	Zambia	2001-2005	Ministry of Local Government & NW Water & Sewerage Company	KfW	330,000 USD