

**References:**

<b>2016 - 2017</b>	Develop Guidelines for Watershed Management Plan (WMP) Preparation and Development of One Watershed Management Plan for a Critical Watershed in Saint Lucia
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	GFA Consulting Group / World Bank
<b>Position:</b>	Non-Key Expert Hydraulic and Civil Engineering Expert
<b>Project Description:</b>	
<p>The project "Consultancy Services to Develop Guidelines for Watershed Management Plan (WMP) Preparation and Development of One Watershed Management Plan for a Critical Watershed in Saint Lucia" is funded by the World Bank through the Government of Saint Lucia. The goal of the project is to establish complete guidelines for integrated watershed management planning (IWMP) in Saint Lucia and to develop one watershed management plan for a critical geographically defined watershed, e.g. Vieux Fort or Fond D'Or. The project includes the development of the guidelines, applying the guidelines at one example watershed and training relevant staff of key agencies in St. Lucia in relevant aspects for watershed management.</p>	
<b>Responsibilities:</b>	Review GIS-database and apply MARXAN Software for gap analysis; contribute to watershed management planning guidelines; collect ecological field data; contribute to selection of critical watershed; contribute to developing example watershed management plan

<b>2016</b>	UNDP/ Japan-Caribbean Climate Change Partnership Baseline Assessment of Climate Change Adaptation and Mitigation activities in Belize, Jamaica, Guyana and Suriname
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	GFA Consulting Group / UNDP
<b>Position:</b>	Climate Change Mitigation Key Expert
<b>Project Description:</b>	
<p>The Government of Japan seeks to strengthen its regional support to CARICOM in the field of combatting climate change. In this context, the Government of Japan is establishing a new regional assistance programme for the Caribbean in the area of climate change under the framework of the 'Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)'. The Japan-Caribbean Climate Change Partnership (J-CCCP), launched officially in January 2016, aims to support eight Caribbean countries in advancing the process of low-emission risk-resilient development by improving energy security and integrating medium to long-term planning for adaptation to climate change. Interventions under the Project include supporting policy innovation through the development of a number of Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) and implementing actual technology that are both low-emission and advances climate risk management, including demonstration in the target countries.</p> <p>A Baseline Assessment on Climate Change related activities and institutional structures was conducted with the main objective to conduct a situational analyses and baseline needs assessments for the purpose of proposing recommendations for project interventions at the policy level (NAMA/NAP process) as well as community level, which are aligned with respective government priorities.</p> <p>Activities strive to build on and strengthen existing work, avoid duplication, upscale where relevant and engage national and other partners active in the countries to achieve these synergies as applicable.</p>	

<b>Responsibilities:</b>	Coordinate and lead the team of in-country climate change mitigation experts; reporting; deputy team leader
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<b>2016</b>	Tumatumari hydropower project
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	GIZ/REETA
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
<p>The Tumatumari hydropower project is an abandoned hydropower site at the Potaro River in Region 8 of Guyana. A private developer plans to re-develop the site by installing new turbines into the existing powerhouse. The optimal installed capacity was estimated to be 2.2 MW using two Franics turbines with about 8.10 net head and 16 m<sup>3</sup>/s rated discharge. The project features a 230 m long concrete weir across the river, in which an inflatable rubber weir of 3.5 m height and 2 x 13.5 m width are planned to be integrated in a future stage.</p> <p>GIZ supports the private developer in providing technical assistance in producing bankable documents for the project.</p>	
<b>Responsibilities:</b>	Hydrologic analysis of flows and floods; hydraulic calculations; civil design; power yield generation; economic analysis; establishment of technical specifications ready for FIDIC tendering; establish business plan; financial modelling; team leading and project management.

<b>2015 - 2016</b>	Training of hydropower engineers of the Guyana Energy Agency and development of the Hosororo micro hydropower project
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	GIZ
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
<p>Within the framework of the GIZ-REETA project, the hydropower experts of the Guyana Energy Agency will be trained in developing hydropower projects. The training is done through a guided feasibility study for a mini hydropower project in Hosororo, Region 1, Guyana, with the objective to run through the entire project development cycle of a small-scale project from feasibility study to project commissioning and operation. Financing of the project's infrastructure will be through GIZ-REETA and funds from the Government of Guyana and other sources as required.</p> <p>The project includes a 20 kW mini hydropower plant feeding into a local, temporary available power grid and supplying an agricultural produce processing factory permanently with electricity.</p>	
<b>Responsibilities:</b>	Training of the engineers; supervision of the feasibility study, tendering and installation of the plant

<b>2015</b>	Review of rehabilitation studies for Ruzizi I and II hydropower projects
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Agut EAS
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
Financed by the German KfW, the Communauté Economique des Pays des Grands Lacs	

(CEPGL) through the Energie des Pays des Grands Lacs (EGL) are seeking a consultant for the detailed study and preparation of the rehabilitation of the two hydropower plants Ruzizi I (29.8 MW, 4 x Kaplan) and Ruzizi II (43.8 MW, 3 x Francis) and adjacent substations. The company INGEROP has won the contract for the rehabilitation works and is requested to investigate the current state of the plants and suggest appropriate rehabilitation works, prepare the respective technical specifications and tender dossiers and assist in selecting the contractors for the rehabilitation works.

<b>Responsibilities:</b>	Review of the rehabilitation studies for the Ruzizi I and II projects
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<b>2015</b>	Support to Implementation of Environmental and Social Action Plan for Lai Chau Hydropower Plant, Vietnam
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Agut Energy Advisory Services / KfW
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
<p>The Lai Chau Hydropower Project (HPP) is part of Da River hydropower cascade in Vietnam. It has a 1.2 billion m<sup>3</sup> reservoir and a designed capacity of 1,200 MW. After completion, the Lai Chau HPP will produce 4,670 GWh of energy annually. EVN (Vietnam Electricity) is the owner of the Lai Chau HPP and has mandated the Son La Hydropower Management Board (SLaMB) to undertake the construction of this power plant. The construction began in 2011, and the plant is expected to be operational by 2017. The project area is an area where poverty is particular entrenched and where there is a very high proportion of ethnic minorities in the affected population (over 70%). The Lai Chau HPP Project will displace about 8,400 people.</p> <p>To support SLaMB and the respective Peoples Committees in carrying out the required environmental and social activities for the Lai Chau Hydropower Project, KfW has appointed an E&amp;S consultant to carry out a gap analysis and develop an additional Environmental and Social Action Plan (ESAP), which integrated Vietnamese national requirements and adds World Bank E&amp;S requirements as surrogate for KfW's Standards. The identified main priorities are:</p> <ul style="list-style-type: none"> <li>• Resettlement, livelihood restoration for resettled households and community engagement;</li> <li>• Reservoir vegetation management and erosion control; and</li> <li>• Community health and safety.</li> </ul> <p>KfW supports SLaMB in seeking assistance from an environmental and social management consultant in monitoring the implementation of the contractor's environmental and social management obligations.</p>	
<b>Responsibilities:</b>	Establishing of Terms of Reference for environmental and social safeguarding; assisting in tendering; tender evaluation; assisting in contracting

<b>2015</b>	Guest Lecturer on Hydropower and Marine Energy at the University of the West Indies, Trinidad and Tobago
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	University of the West Indies, Trinidad and Tobago
<b>Position:</b>	Hydropower Lecturer
<b>Project Description:</b>	
<p>Since 2013 the University of the West Indies is implementing two different Master of Science programs at the campuses in Trinidad and Barbados. While the program at the Barbados campus is directed towards renewable energy management, the program taught</p>	

in Trinidad is technology oriented. In April 2015 the course on hydropower and marine energy was offered to the students for the first time. The teaching materials were prepared to teach the subject in a manner that is relevant for the Caribbean.

<b>Responsibilities:</b>	Development of course materials and presentations; give lectures, tutorials and laboratory sessions.
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<b>2014 - 2015</b>	Hydropower Resource Assessment at selected rivers in Bavaria and Baden Wuerttemberg, Germany
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Confidential
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
A private investor intends to use the favourable German regulatory framework and develop small hydropower plants in Germany, preferably in the southern part. Within a study hydropower sites shall be identified, evaluated and ranked according to selection criteria for preparation of the decision making process. Based on systematic analysis of selected rivers using the hydroMinds GIS-based tool the hot-spots for hydropower potential at these rivers shall be identified and ranked and the best ranked sites verified in the field through field trips and respective measurements. Expected result is an overview map indicating the hydropower potential of and along the rivers including a descriptive report.	
<b>Responsibilities:</b>	Project management, hydrological and geographical analysis, hydropower potential analysis, verification and reporting

<b>2014-2015</b>	Terms of Reference for Electricity System Upgrade Consultancy for Hanoi and Ho Chi Minh City, Vietnam
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Agut Energy Advisory Services GmbH
<b>Position:</b>	Energy and Procurement Expert
<b>Project Description:</b>	
Financed by the German KfW, the Vietnamese power company EVN seeks to hire a consultant for the implementation of a large-scale power grid upgrade in Hanoi and Ho Chi Minh City. Agut EAS is contracted to act during the procurement process as tender agent. Key tasks are establishing the terms of reference for the contract, publishing tender notices, evaluating submissions for expression of interest and bids and assist KfW in contracting the selected firm.	
<b>Responsibilities:</b>	Establish Terms of Reference for contracting a Bank's Engineer during project implementation

<b>2014-2015</b>	Bankable Feasibility Study of the John Compton Dam, Saint Lucia
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Projekt-Consult GmbH
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
The John Compton Dam is a drinking water reservoir for the supply of the island's north with potable water. Built in 1995-96, the 30 m high dam and attached reservoir with its 1.9 million m <sup>3</sup> water storage were never equipped with a hydropower facility but offer obvious potential for hydropower generation. The owner of the dam and reservoir, St. Lucia Water Services Company Ltd., has received technical assistance from the GIZ-implemented	

Caribbean Renewable Energy Development Programme (CREDP-GIZ) for the preparation of a bankable feasibility study to attach a hydropower plant to the dam complex at the existing low-level water outlet. The high degree of siltation in the reservoir and the water supply requirements are additional aspects to be considered in the study.

**Responsibilities:** Topographic survey works, project design, cost estimates, feasibility analysis, registration as CDM project

<b>2014</b>	Tender Evaluation of the Ruzizi I + II Rehabilitation and Institutional Setup Review, Rwanda, Burundi, Democratic Republic of Congo
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Agut Energy Advisory Services GmbH
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
Financed by the German KfW, the Communauté Economique des Pays des Grands Lacs (CEPGL) through the Energie des Pays des Grands Lacs (EGL) are seeking a consultant for the detailed study and preparation of the rehabilitation of the two hydropower plants Ruzizi I (29.8 MW, 4 x Kaplan) and Ruzizi II (43.8 MW, 3 x Francis) and adjacent substations. Furthermore, two more consultancies are sought for review of the institutional setup of the projects and to provide in-house technical assistance for EGL.	
<b>Responsibilities:</b>	Review and evaluation of the technical and financial proposals for the rehabilitation services of Ruzizi I + II

<b>2014</b>	Concept for electricity supply of the Lethem to Annai area utilizing the Wamakaru hydropower project
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Gesellschaft für Internationale Zusammenarbeit (GIZ)
<b>Position:</b>	Project Manager / Hydropower Expert
<b>Project Description:</b>	
The Wamakaru Hydropower Project in Guyana is one of a list of 67 potential hydropower projects in Guyana. The Government of Guyana intends to develop the hydropower project to supply cheap and clean electricity to the booming town of Lethem and its surrounding, largely non-electrified villages between Lethem and Annai in Guyana's Hinterland. To cater for the existing diesel generation station in Lethem and existing decentralized solar PV systems and to ensure satisfaction of all electricity needs, an electricity supply concept for the supply area is required that takes into account the energy sources from the Wamakaru project, the Moco-Moco and Kumu hydropower projects and the demand development in the region. The concept is used to apply for funding for the development of the project.	
<b>Responsibilities:</b>	Concept design, preliminary electricity demand and social impact assessment, preparation of financing application documents

<b>2013 - 2015</b>	Installation of a Flood Early Warning System in St. Lucia
<b>Employer:</b>	Sven Homscheid Hydropower + RE Consulting
<b>Client:</b>	Government of St. Lucia; Ministry of Sustainable Development, Energy, Science and Technology; Water Resource Management Agency
<b>Position:</b>	Project Manager, Hydrologist
<b>Project Description:</b>	
The Government of St. Lucia seeks to install a flood early warning system and hydro-	

logical monitoring equipment for water management and disaster risk reduction. One of the objectives of the AusAID-financed project is to re-establish long-term hydrological monitoring stations, expand the local flood warning system and strengthen applications of hydro-meteorological approaches. Based on the existing measuring infrastructure and a needs assessment, a comprehensive hydrometric network is de-signed with priorities assigned to the various gauging sites. High priority will be assigned to flood early warning stations, out of which three sites will be equipped with suitable gauging equipment and public alert systems. A hydrologic software model is established to allow flood forecast and early warning. The project includes a major training component within all tasks.

<b>Responsibilities:</b>	Project management, design of hydrometric network, supervision of equipment procurement and installation process, establishment of hydrologic software model, counterpart training, public awareness
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<b>2012-2013</b>	Tender Documents, Procurement and Contracting of the Kato Mini Hydropower Project
<b>Employer:</b>	Projekt-Consult GmbH
<b>Client:</b>	Government of Guyana
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
The Government of Guyana has received funding from the European Union's ACP Energy Facility for the implementation of the 330 kW mini-hydropower plant at Kato, Guyana, Region 8, and the installation of an irrigation pumping station and irrigation water storage reservoir. The project is the first component of a rural electrification project that comprises a component for electricity supply from a hydropower plant to the villages of Kato and Paramakatoi, an irrigation agriculture component and the establishment of a secondary school for 1,000 students. The hydropower plant with 2 x 165 kW cross-flow turbines will convert the energy of the Kato Falls at the Chiung River for conversion to electricity and administration in the electricity transmission system that is build as part of the project.	
<b>Responsibilities:</b>	Employer's Engineer, project management, establishing the design and build tender documents for the hydropower and parts of the irrigation infrastructure component, assistance during tendering and contract negotiations; capacity building of the client's staff

<b>2008 - 2013</b>	Caribbean Renewable Energy Development Programme (CREDP-GIZ)
<b>Employer:</b>	Projekt-Consult GmbH
<b>Client:</b>	Gesellschaft für Internationale Zusammenarbeit (GIZ)
<b>Position:</b>	Technical Advisor
<b>Project Description:</b>	
The programme seeks to re-move barriers for the use of renewable energy and application of energy efficiency in the Caribbean region through government advisory, public awareness and capacity building and the support in implementation of pilot projects. The program promotes renewable energy technologies such as hydropower, wind power, solar power (water heater, photo-voltaic and solar cooling), bio-fuels and to a limited extend geo-thermal. In the position as the technical advisor and long-term specialist in the region most technical activities and numerous capacity building, public awareness and government advisory services belong to the responsibilities. Outstanding activities were - Execution of the pre-feasibility studies of the South Rivers and Richmond hydro-power plant rehabilitation and upgrade projects (1.1 MW, 1.7 MW) and the South Rivers	

Stage 2 hydropower project (new, 1.1 MW) in St. Vincent, the Newtown hydropower project in Dominica (0.2 MW), and the John Compton Dam hydro-power plant in St. Lucia (0.2 MW);

- Project management of the South Rivers and Richmond hydropower plant rehabilitation and upgrade projects (1.1 MW, 1.7 MW) and the South Rivers Stage 2 hydropower project (new, 1.1 MW) in St. Vincent, including environmental impact assessment;
- Project management of the Newtown hydropower project in Dominica (0.2 MW), including environmental impact assessment;
- Due diligence and second opinion for the Greater Laughland River hydropower project in Jamaica (2.0 MW);
- Due diligence and second opinion for the Kato hydropower project in Guyana (0.3 MW);
- Procurement and installation of river stream gauging equipment in Dominica and St. Vincent;
- Advisory services for wind park developments in St. Lucia and St. Vincent;
- Capacity building workshops for hydrometric networks, hydropower development, and energy efficiency in building design;
- Teacher's training (St. Lucia, Nevis, Grenada) for renewable energy use and energy efficiency application;
- Various other project activities with public and private project partners

<b>Responsibilities:</b>	Technical Advisor of the technical cooperation project between the German Ministry of Economic Cooperation and Development and CARICOM; Main activities: Project management of pre-feasibility and feasibility studies and the establishment of tender documents; contract management; public awareness and capacity building through workshops and seminars
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<b>2013</b>	Public Hydropower Lecture
<b>Employer:</b>	Projekt-Consult, CREDP-GIZ
<b>Client:</b>	Guyana Energy Agency
<b>Position:</b>	Lecturer
<b>Project Description:</b>	
The Guyana Energy Agency considers part of its mandate to raise awareness and build capacity in the field of renewable energy. Under that mandate, the GEA has invited the public to participate a public lecture on the technical background on hydropower technology. The half-day seminar was held in April 2013 in Georgetown, Guyana, to a broad audience of interested participants across all professions.	
<b>Responsibilities:</b>	Preparation and delivery of seminar

<b>2011 - 2012</b>	Optimization of DOMLEC's existing hydropower facilities
<b>Employer:</b>	Self-employed
<b>Client:</b>	DOMLEC, Dominica
<b>Position:</b>	Hydropower Specialist
<b>Project Description:</b>	
Optimization of DOMLEC's existing hydropower facilities to maximize the generation system's energy output, including assessment of penstock pipeline and other generation facilities. Analysis of operational methods and suggesting changes in operation and maintenance with special emphasis on preventive maintenance.	
<b>Responsibilities:</b>	Project management, technical and economical analysis of

	hydro infrastructure and operational practices, identification of optimization potential and reporting; execution of efficiency tests at the hydro-power equipment and advising DOMLEC with regards to pipeline inspection works; economic analysis of options and formulation of recommendations and drafting of optimized maintenance handbook
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<b>2011</b>	Conception of a program to control sedimentation in the hydropower reservoirs of EGEHID
<b>Employer:</b>	Projekt-Consult GmbH
<b>Client:</b>	GIZ / EGEHID Republica Dominicana
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
EGEHID is the sole producer of hydro electricity in the Dominican Republic. After several years of operation several of the multi purpose reservoirs fill up with sediments quicker than expected which leads to major loss of storage capacity. First negative impacts of the sediment intake to the turbines were experienced resulting in high wear of the turbine runners and other infrastructure. A concept is required for the management of the sediments in the reservoir. The concept includes a long-term strategy, institutional integration and the suggestion of pilot measures to clean the most affected reservoirs.	
<b>Responsibilities:</b>	Development of the long term strategy; identification of an institutional set-up for a sediment control unit for reservoirs in the DR; development of approaches for the clearing of sediments from the most affected reservoirs; conception of a pilot project for sediment control to be financed by international aid organizations.

<b>2011</b>	Conception and review of various designs of mini hydropower projects in Bolivia
<b>Employer:</b>	Projekt-Consult GmbH
<b>Client:</b>	KfW, Ministerio de Energia y Energias Alternativas, Bolivia
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
The German KfW, through Projekt-Consult GmbH and A&R Bolivia, is implementing the "Programa Energías Renovables KfW" in Bolivia. The program focuses on the installation of mini hydropower plants for rural electrification and meeting the grid de-mand in rural areas of Bolivia. A total of 6 hydropower plants will be installed by end of the project. Projekt-Consult, together with a local partner, is the supervisor and consultant for the program and responsible for the proper design and implementation of the projects of 28 kW to 1 MW size.	
<b>Responsibilities:</b>	Review of existing designs and design of new hydropower project concepts, including project layout, general design of structures and coordination of project activities; Due diligence to improve the performance of completed projects; General consultancy to the vice-ministry of renewable energies with regards to renewable energy development activities.

<b>2009</b>	Feasibility Study, Tender Design and Tender Documents of the South Rivers Stage 1 and the Richmond hydropower project rehabilitation and upgrade and the South Rivers Stage 2 new hydropower project, St. Vincent and the Grenadines
<b>Employer:</b>	
<b>Client:</b>	VINLEC, St. Vincent and the Grenadines
<b>Position:</b>	Project Manager
<b>Project Description:</b>	
<p>The South Rivers and Richmond Hydropower Projects were built in 1951 and 1962, respectively, and are due for overhaul. It is intended to increase the installed capacity and the power output of the equipment in conjunction with the overhaul. Within the feasibility study the technical parameters of the new equipment and structures were studied and topographical survey was prepared. The existing pipelines were inspected and analysed for their re-use in the overhauled plants. The studies concluded that an increase in capacity of the existing plants and the construction of a new, third plant are economically feasible. The tender design and tender documents for all three projects were established.</p> <p>Technical data (after the rehabilitation):</p> <p>South Rivers: 2 x 555 kW Pelton turbines; head = 104 m; rated discharge = 1.3 m<sup>3</sup>/s; run-off river scheme with weir, desander, head pond and 2.3 km pipeline.</p> <p>Richmond: 2 x 815 kW Pelton turbines, head = 104 m; rated discharge = 2.0 m<sup>3</sup>/s; run-off river scheme with weir, desanding structure; surge tank; and 1.6 km pipeline.</p> <p>South Rivers Stage 2: 2 x 550 kW Francis type turbine; head = 80 m; rated discharge = 1.6 m<sup>3</sup>/s; run-off river scheme with rubber weir, desander and 2.5 km pipeline.</p>	
<b>Responsibilities:</b>	Project management of the feasibility studies, tender designs and the establishment of tender documents; contract management.

<b>2009</b>	Feasibility Study, Tender Design and Tender Documents of the Newtown hydropower project, Commonwealth of Dominica
<b>Employer:</b>	
<b>Client:</b>	DOWASCO, Commonwealth of Dominica
<b>Position:</b>	Project Manager
<b>Project Description:</b>	
<p>DOWASCO is the owner of a 5.2 km long pipeline that was originally foreseen to supply bulk water from the tailrace of an existing hydropower plant operated by DOMLEC to the shoreline where the water was supposed to be loaded onto ships. The pipeline was built but due to water pollution was never used as water supply line. The project studied the possibility to use the pipeline for the purpose of hydropower generation.</p> <p>Technical details: 1 x 220 kW Francis turbine; head = 108 m; rated discharge = 350 l/s; run-off river scheme with weir, desanding structure, 5.2 km pipeline and powerhouse.</p>	
<b>Responsibilities:</b>	Project management of the feasibility study, tender design and the establishment of tender documents; contract management.

<b>2009</b>	Due Diligence of the Laughland's Greater River Hydropower Project, Jamaica
<b>Employer:</b>	Projekt-Consult GmbH, CREDP-GTZ
<b>Client:</b>	Petroleum Corporation of Jamaica (PCJ)
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
<p>The Laughland's Greater River hydropower project in Jamaica is in its feasibility stage. Several studies have been made over the years on this project with the latest being done in 2009. CREDP-GTZ was asked by PCJ to give a second opinion to the existing feasibility study and to review the study's results in order to identify the optimum project configuration to be implemented.</p> <p>The project comprises a weir structure, desanding structure, 2.3 km pipeline of 1.4 m diameter, a powerhouse with two Francis type turbines; installed capacity: 2 MW; rated discharge: 2.6 m<sup>3</sup>/s; rated head: 105 m;</p>	
<b>Responsibilities:</b>	Review of feasibility study, hydrologic and hydraulic design, economic analysis

<b>2009</b>	Employer's Engineer / Due Diligence of the Kato Mini Hydropower Project
<b>Employer:</b>	Projekt-Consult GmbH, CREDP-GTZ
<b>Client:</b>	Government of Guyana
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
<p>Kato is a small village at the Chiung River in the West of Potaro-Siparuni (Region 8), near the Brazilian border. The proposed hydropower and irrigation project for the Chiung River is to be located between the Amerindian villages of Kurukabaru and Kato. The small-scale hydro facility is designed to provide electricity to the population and to pump water to create farmland by artificial irrigation, supporting local economic development, livelihood enhancement and security. The village has a population of approximately 250 households, which are very scattered over the village's area. Kato village is not connected to the national electricity grid. Small solar panels are installed in order to supply several buildings, such as the shop, the police station, the hospital and the school. The proposed hydropower plant is supposed to provide the village with continuous electricity supply that would enable economic development. The proposed hydro power plant consists of a gabion core weir with an intake structure, a desanding structure, a headrace canal and subsequent penstock and a powerhouse. The suggested technical data is:</p> <p>Installed capacity: 330 kW; turbine type: cross-flow; design discharge: 1.0 m<sup>3</sup>/s; design head: 36 m.</p>	
<b>Responsibilities:</b>	Advising the Government of Guyana in technical questions; representing the Client at the field trips; review of the feasibility study, establishing of documents required for financing through the European Union Energy Facility

<b>2007</b>	Construction Supervision of the Merowe Multi-Purpose Project, Sudan
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	Dams Implementation Unit, Sudan
<b>Position:</b>	Concrete Engineer
<b>Project Description:</b>	

The Merowe Multi-Purpose Dam Project is located in the north of the Sudan at the River Nile. The nearly 10 km long and 65 m high dam is composed of a solid concrete section, a clay core earth fill section, CFRD sections and zoned fill dykes. Ten Francis type turbines of 125 MW each are installed in the main powerhouse and double the installed capacity of the country. On the right and left bank are irrigation outlets that can be equipped with additional hydropower plants. A 780 kW power line connects the station with the load center in Khartoum. Lahmeyer International GmbH was contracted to supervise the construction works being done by a Chinese contractor joint venture.

<b>Responsibilities:</b>	Supervision of concrete works; approval of concrete casting permissions; supervision of concrete quality site laboratory; concrete quality testing
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<b>2007 - 2008</b>	Feasibility study, tender design and tender documents of Sabaloka, Dagash and Mograt Hydropower Projects, Sudan
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	Dams Implementation Unit, Sudan
<b>Position:</b>	Project Engineer and Project Coordinator
<b>Project Description:</b>	
Sabaloka, Dagash and Mograt hydropower projects on the river Nile; Type: run-of-river hydropower plants, bulb turbines, concrete spillway with radial gates, lateral fill dams, navigation lock (Sabaloka), Sabaloka: P = 170 MW, H = 8 m; Dagash: P = 280 MW, H = 14 m; Mograt: P = 150 MW, H = 7 m; Tasks: review of existing feasibility study, preparation of (updated) feasibility study, tender documents for geotechnical site investigations, project tender design, establishing tender documents;	
<b>Responsibilities:</b>	Project coordination; Backstopping for geotechnical investigations; Conceptual design; Review of existing feasibility study; Coordination of the preparation of feasibility studies;

<b>2007</b>	Feasibility study Rahat and Kenana Irrigation Projects, Sudan
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	Ministry of Water and Energy, Sudan
<b>Position:</b>	Hydrologist
<b>Project Description:</b>	
The Rahat and Kenana irrigation schemes use water from the Blue Nile that is abstracted from the Roseires Reservoir or shortly upstream of it and irrigates two large agricultural development schemes in South Sudan. The project serves to study the feasibility of the irrigation scheme regarding technical and economic feasibility and to optimize the project concept.	
<b>Responsibilities:</b>	Hydrologic modelling of the Roseires Reservoir for water management

<b>2007</b>	Expansion plan study and related services, MRA – Malta Resources Authority, Malta
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	MRA – Malta Resources Authority, Malta
<b>Position:</b>	Project Engineer
<b>Project Description:</b>	
Strategic advisory / planning of the medium and long term expansion of the generation system under consideration of technical, economic and environmental aspects as well as the energy sector's regulatory framework	

<b>Responsibilities:</b>	Scoping for renewable energy sources; site survey and cost assessment for infrastructure components
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<b>2007</b>	Site Surveys for Small Scale Hydropower Plants, Albania
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	Private investor
<b>Position:</b>	Hydropower Expert
<b>Project Description:</b>	
Identification of feasible hydro power sites in Albania; Type: run-of-river HPPs, bulb turbines, concrete weir with gated spillway, weir heights: up to 15 m; installed capacity: up to 15 MW; rated head: up to 12 m; Tasks: preparation and conduction of site visit at Vjosa river in southern Albania, selection and evaluation of probable sites, evaluation of basic conditions for renewable energy; selection and ranking of most promising sites, economic and socio-economic assessment of selected sites, assessment of expected revenues;	
<b>Responsibilities:</b>	Preparation and conduction of site visit; conceptual design; socio-economic and cost assessment; evaluation of basic and legal conditions for small hydropower; economic evaluation; reporting

<b>2005 - 2007</b>	Mambilla Hydroelectric Project, Nigeria
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	Ministry of Energy, Nigeria
<b>Position:</b>	Project Engineer
<b>Project Description:</b>	
Hydro power project; Tasks: review of existing feasibility study and establishment of bankable feasibility study, establishing of the Tender Documents; Concept: 3 reservoirs interconnected with tunnels; dam heights: 86 m (RCC), 79 m (CFRD) and 75 m (CFRD); installed capacity: 1,300 MW (first stage), 2,600 MW (second stage) in underground powerhouse; rated head: 950 m; mean flow: app. 60 m <sup>3</sup> /s, 100-yrs flood: app. 880 m <sup>3</sup> /s; reservoir storage: 4.6 x 10 <sup>9</sup> m <sup>3</sup> ; spillways: gated and ungated spillways with flip bucket, water transfer: app. 30 km tunnel	
<b>Responsibilities:</b>	Civil design, value engineering, project coordination, hydraulic calculations, reporting, hydrological review, reservoir operation review, hydraulic review

<b>2005</b>	Munda Multipurpose Dam Project, Pakistan
<b>Employer:</b>	Lahmeyer International GmbH
<b>Client:</b>	AMZO USA
<b>Position:</b>	Project Engineer
<b>Project Description:</b>	
Multipurpose Dam Project: power production, irrigation, flood protection; Task: feasibility study; Type: dam type: concrete faced rockfill dam, height: 198 m; installed capacity: 740 MW in underground cavern; Swat River: mean flow of app. 250 m <sup>3</sup> /s, 100-yrs flood: app. 4,000 m <sup>3</sup> /s; reservoir storage: 1,200 Mio. m <sup>3</sup> , dam volume: 14.6 Mio. m <sup>3</sup> ; spillway: gated spillway with flip bucket, design discharge: 10,050 m <sup>3</sup> /s	
<b>Responsibilities:</b>	Flood hydrology, preliminary hydraulic design of spillway structures, cost / benefit analysis of river diversion, reservoir routing computations, hydraulic computation of river water levels

<b>2003</b>	Renovation of the Weir of a Mini Hydro Power Plant in Mayen, Germany
<b>Employer:</b>	igeo GmbH
<b>Client:</b>	Private investor
<b>Position:</b>	Design Engineer
<b>Project Description:</b>	
Mini hydro power plant, run-of-river power plant; tasks: survey of the existing facilities, design of a renovated weir for water diversion into the power channel; estimation of hydrologic data; flood analysis; structural design; estimation of quantities and costs; preparation of tender documents; consulting of owner	
<b>Responsibilities:</b>	Hydraulic design, flood analysis

<b>2002</b>	Construction of a Mini Hydro Power Plant at the River Nette in Mayen-Hausen, Germany
<b>Employer:</b>	igeo GmbH
<b>Client:</b>	Private investor
<b>Position:</b>	Design Engineer
<b>Project Description:</b>	
Mini hydro power plant, run-of-river power plant; tasks: review of existing documents; proceeding of survey works; development of hydrological basics; hydraulic design of all structures; estimation of quantities and costs; preparation of legal permission documents; reporting and presentation including public participation	
<b>Responsibilities:</b>	Hydraulic design of weir and intake structure, design of channel impounding, preparation of AutoCAD drawings

<b>2001 - 2002</b>	Feasibility Study of a Mini Hydropower Plant at the Salm River in Kluesserath, Germany
<b>Employer:</b>	igeo GmbH
<b>Client:</b>	Private investor
<b>Position:</b>	Design Engineer
<b>Project Description:</b>	
Economic analysis of the reactivation of an old mill with existing rights for water use; estimation of hydrological basics; proceeding all required survey works; choice and sizing of the appropriate machinery considering economy; computation of water levels in the upstream and downstream waterways; estimation of the annual power production and it's financial benefit; installed capacity: 30 kW; mean flow of Salm river: app. 3.9 m <sup>3</sup> /s, 100-years flood: app. 80 m <sup>3</sup> /s	
<b>Responsibilities:</b>	Proceeding of survey works, establishment of hydrology, hydraulic and structural design, survey of legal framework conditions for RE and SHPP, reporting and presentation (Diploma Work I)