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MUHANDSEEN SEC
GIRDY ANDAZYARAN 105
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Tel. No.s:
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+ 964 770 199 1511 - Shna F. Ahmed
+ 964 53 330 0881 - Office Land Line

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BAGHDAD
Email: itsciraq@yahoo.com
Tel. No.s: +9641 7184379
+ 964 790 190 6410 - Othman Aziz
+ 964 790 190 6345 - Adeb Mansor
Jordan Branch Office
ITSC LTD
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+ 962 79985 7300 - Mohammed Hilmi
+ 962 6551 3079 - Office
Fax: +962 6 5511435

Engineering Office / Belgrade Branch
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YUGOSLAVIA

Russian Federation Branch Offices
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LENINSKI PROSPEKT
93/II-3-101
MOSCOW 119313
RUSSIA
ITSC LTD RU
M. ZHUKOVA 10
NIZHNYEVARTOVSK 626440
RUSSIA

Company Related Web Sites:
http://www.ikconseng.co.rs/
http://www.itscltd.com/
http://www.kocks-ing.de/

Activities
Group: Design, Engineering and Construction Management.
Iraq: Engineering and Contracting Works.
Jordan Branch Office
ITSC LTD
E9 ABOUDB CENTRE
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P.O. BOX 1565
AMMAN 11953
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NIZHNYEVARTOVSK 626440
RUSSIA

Company Related Web Sites:
http://www.ikconseng.co.rs/
http://www.itscltd.com/
http://www.kocks-ing.de/

Activities
Group: Design, Engineering and Construction Management.
Iraq: Engineering and Contracting Works.
The Group have been incorporated in London, United Kingdom in 1988 with initial shareholding of GBP 1,000,000 fully issued and fully paid at time of Incorporation.

The Group established by a number of professional engineers who gained World class experience in forms like Ove Arup, DSSR, and Energoprojekt Hydroengineering.

In 1992 the Group established a specialised company in Water Engineering, Dams and Hydro Power in the UK as an affiliate of ITSC Ltd, named ITSC Hydroengineering with GBP 500,000 fully issued and fully paid. The shareholders in this company were 51% ITSC Ltd and 49% Energo Projekt Hydroengineering of Belgrade.

This year the Group have started to shift all consulting engineering works and production to Belgrade Branch. In 2002 ITSC Ltd bought all Energo Projekt Hydroengineering shares and the Group became independent with Engineering Staff in (4) four main locations. In the UK overall management and Group Headquarters, Main Design and Engineering Offices in Belgrade, Serbia and Montenegro and Two Design and Build Offices at Nizhnyevartovsk, Russian Federation and Baghdad, Iraq.

The Group have a multi-disciplinary team of engineers and provide a wide range of Engineering Services with particular expertise in Water Engineering, Water and Wastewater Treatment, Dams and Hydropower Irrigation Systems and Solid Waste Treatment.

The Project list in the last five years includes the following:-

1) **Serbia and Montenegro**
   - 3 WWTP for Belgrade Preliminary Design and Feasibility Study.
   - Sewage Network in 7 Towns in Montenegro.
   - Survey and Maintenance Programme for 25 Dams, including Celijc, Bovan, Vrujlci, Gruza, and Barje.
   - Hydropower Dam – Ducola, Montenegro.
   - 4 Desalination Plants in Montenegro.
   - Water Treatment Plant in Tamarin.
2) Russian Federation
- Jaroslave Water Treatment Plant – Turnkey.
- 6 Indoor Sports Arenas in six cities in Tumen Region – Turnkey.
- 3 Office Buildings in Nizhnyevartovsk – Turnkey.
- General Hospital in Nizhnyevartovsk – Turnkey.
- Solid Waste Treatment, Moscow BOT – Contract Stage in JV with FISIA BABCOCK.

3) Cyprus
- 2 WWTP and Sewage Networks for Nicosia – Design, Engineering and Site Supervision.

4) Macedonia
- Water Treatment Plant, Kocani – Design, Engineering and Site Supervision.

5) Tunis
- Solid Waste Separation System, Tunis.

6) Algeria
- Environmental Impact Assessment, Ksar Sebahi – Dam and Irrigation Project.

7) Iraq
- Falluoja Water Treatment Plant - Design, Engineering and supply of Electrical Equipments.
- Nassiriya Water Treatment Plant – Design and Engineering.
- Refai Water Treatment Plant – Turnkey.
- Makhool Dam – Evaluation of Feasibility Study.
- Kerkh WWTP – Rehabilitation.
- Diwaniya WWTP – Rehabilitation.
- Zaafaraniya Waste Water Pumping Station – Design and Build.
- Shariq Dijlah Water Intake- Detailed Design and Put in Operation.

<table>
<thead>
<tr>
<th>Total Number of Engineering Staff: 282</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Consulting Engineering Staff: 76</td>
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</table>
Locations

ITSC Group

ITSC-London
ITSC Hydroengineering
United Kingdom

ITSC-Belgrade
ITSC Hydroengineering
Belgrade, Serbia

ITSC-Budva
Montenegro

ITSC-Budva
ITSC Hydroengineering
Montenegro

ITSC- Amman
ITSC Hydroengineering
Amman, Jordan

ITSC-Baghdad
ITSC Hydroengineering
Baghdad, Iraq

ITSC-Baghdad & Sulaimanyah
Baghdad, Iraq

ITSC-Niznevartovsk
ITSC Hydroengineering
Niznevartovsk, Russia
Thanks to ITSC multi-disciplined orientation, we can offer a broad spectrum of services, based on water power, process engineering, water provision and hydraulic engineering.

Experts from various specialist fields work out multi-disciplined solutions, which are technically, ecologically, socio-economically and financially optimized and well balanced.

From the establishment of programs for geological surveys through preparation of Tender Documents, to undertaking construction supervision, we are qualified partners for projects of the most varied kind and size.

ITSC brings a disciplined and controlled approach to:

- Data collection and interpretation
- Assessment of existing facilities and structures
- Feasibility studies for funding agencies
- Socio-economic investigations
- Demand and revenue assessment
- Environmental audit and impact studies

ITSC Company applies these skills to the assessment of a wide range of projects in the environmental and energy sectors, including:

- Water resource and regional development
- Dams and hydroelectric power engineering
- Water & Wastewater treatment
- Land reclamation and irrigation
- Infrastructure and environmental engineering
- Hydropower Plants and electro-mechanical systems

We support our Clients through all stages of the project from planning through setting up of the networks, to the development of the processes and applications. We have accumulated knowledge needed to achieve full management and control of its projects.

ITSC offers a wide range of options to secure the construction, commissioning and operation of the project in the manner that best supports the Client’s financial plan and the funding agency budget.

The multidisciplinary teams provide a comprehensive design service in:

- Water and wastewater treatment and effluent reuse
- Dams and hydroelectric power engineering
- Foundation design
- River hydraulics
- Electrical and mechanical plant design
- Control system
- Solid waste control
• Complex structures

Within the selected form of contract, ITSC group can provide consulting services including:

• Project planning
• Cost evaluation and budget control
• Customised proposals
• Contractor documentation and bills of quantities
• Contractor pre-qualification and evaluation
• Bid analysis and evaluation
• Construction supervision
• Inspection and testing of plants and materials
• Quality assurance procedures
• Analysis and certification of payment
• Program monitoring and management
• Commissioning and acceptance of the works
• Maintenance and operation manuals
• Training of Client personnel
**- EQUIPMENT SUPPLY**

We are the sole representative in Kurdistan of some high Technology Manufacture from West Europe and United States in the field of water and power system:

1- **Pent Air group**; U.S Leading Manufacturer of Water and Waste Water Pumps.

2- **F.G Wilson**; British Manufacturer of Diesel, Gas, Power Generators up to 2-2 MVA.

3- **Hawker Siedly**; U.K Leading Manufacturer of Switch Gears, Substations and Control.

4- **Brush Transformers**; U.K Leading Manufacturer of Power, Control, Distribution Transformers.

5- **Hambaker Ductile Pipes and Fittings**; British Leading Company in Europe for Fabricating Ductile Iron Pipes, Fittings and Penstocks.

6- **VAG – Armaturen**; German Manufacture of Quality Valves and Fittings for Water, Waste Water and Gas.
- ITSC REFERENCES WORLD WIDE

- WATER SUPPLY SYSTEMS AND WATER TREATMENT PLANTS.

- SEWERAGE SYSTEMS AND WASTEWATER TREATMENTS.

- ENVIRONMENTAL ENGINEERING.
POTABLE WATER SUPPLY

Springs

Wells

Rivers

Reservoirs

Limassol Plant
Serving Limassol, Cyprus

PURPOSE
Treatment of water from the "Kouris" reservoir for potable water supply to the City of Limassol. Removal of organic and mineral suspended matter, iron, manganese and asbestos, followed by disinfection of water.

PLANT CHARACTERISTICS
Nominal Plant capacity 3500 m³/h; first phase 1750 m³/h.
Aeration: diffused air, nominal retention time 6 min.
Blowers: phase 1 - 170 m³/h (2+1); provision for ozone application.
Coagulation: through hydraulic jump.
Flocculation: three steps with variable speed mixers, total retention time of 20 minutes.
Sedimentation: three lamellar clarifiers (phase 1), nominal surface load 1,2 m³/h; integrated sludge thickeners; sludge recirculation to rapid mixing compartment.
Chemical storage and dosing facilities for aluminium sulphate, polyelectrolyte, lime, and chlorine.
Filtration: six open rapid gravity sand/anthracite filters (phase 1) each with filtration area of 46 m², nominal filtration rate 8 m³/h; constant level control; provision for granular activated carbon application.
Backwash water recovery system.
Sludge dewatering in eight sludge drying lagoons (phase 1).
Treated water reservoir; capacity 10,000 m³.
Fonte Gaj Plant
Serving Labin, Croatia

PURPOSE
Treatment of Karst spring water for potable water supply of the City of Labin. Removal of organic and mineral suspended matter followed by disinfection of water.

PLANT CHARACTERISTICS
Total Plant capacity 1,800 m³/h in 2 phases.
Two intakes.
Two pumping stations: first two pumps - capacity 360 m³/h each; second two pumps - capacity 1,180 m³/h each.
Coagulation: rapid propeller type mixer.
Flocculation: two steps with variable speed mixers, total retention time 16 minutes.
Sedimentation: two lamellar clarifiers - surface load 18 m³/h with integrated sludge thickeners.
Chemical storage and dosing facilities for sulphuric acid, aluminium sulphate, polyelectrolyte, lime, chlorine.
Filtration: twelve open rapid gravity sand filters each with filtration area of 26 m²; nominal filtration rate 7 m³/h; declining rate filtration control.
Filter backwash: two backwash water pumps - velocity 40 m/h; one air scour blower - velocity 90 m/h.
Sludge conditioning with lime.
Sludge dewatering by means of drying beds.
Storage tank: capacity 4,000 m³.
Distribution pumping station: three pumps of 600 m³/h with heads up to 400 m.
### Assignment Name:
**PRE-FEASIBILITY STUDY WITH BASIC DESIGN FOR IMPROVEMENT OF THE WATER QUALITY AND POTABLE WATER SUPPLY SYSTEMS IN KIKINDA, ZRENJANIN, BECEJ AND NOVI BECEJ, SERBIA**

<table>
<thead>
<tr>
<th>Country:</th>
<th>Serbia</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Location within Country:</th>
<th>Professional Staff Provided by</th>
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</thead>
<tbody>
<tr>
<td>Kikinda, Zrenjanjin, Becej, Novi Becej</td>
<td>ITSC</td>
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<table>
<thead>
<tr>
<th>Name of Client:</th>
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<tbody>
<tr>
<td>Government of Federal Republic of Germany</td>
<td>20</td>
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<tr>
<td>Government of Serbia</td>
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<table>
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<tr>
<th>Address:</th>
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<tr>
<td>TZW (Technologiezentrum Wasser), Germany</td>
<td>-</td>
</tr>
<tr>
<td>Ehting, Serbia and Montenegro</td>
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</table>

<table>
<thead>
<tr>
<th>Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof Dr ipl.-ing Wolfgang Kuhn – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Stefan Stauder – Project Manager and Potable Water Treatment Expert</td>
</tr>
<tr>
<td>Marina Vasiljevic– Potable Water Treatment Expert</td>
</tr>
<tr>
<td>Momcilo Bikicki - Hydraulic Expert</td>
</tr>
</tbody>
</table>
Narrative Description of Project:

Four Municipalities in Serbia, Kikinda, Becej, Novi Becej and Zrenjanin, have a lot of problems with water quality primarily related to Arsenic presence and presence of other pollutants in water. General scope of the Pre-feasibility Study with Basic Design for Kikinda, Becej, Novi Becej and Zrenjanin is as follows:

- Analyses of long term solution for water supply, according to water management plan, analyses of the problems in project implementation
- Analysis of water quality and consumption water in the existing water sources for four municipalities
- Estimation of necessary water flows on the base of European Union recommendations of water consumption per inhabitant including local condition of consumption, industrial water need etc.
- Analyses of main pipelines for raw and treated water, water losses and operation of existing structures of water supply system
- Analyses of alternative options for main pipelines and determination of possible water treatment plant locations
- Analysing of up to date activities for resolving water supply problems, existing technical documentation, results from various pilot plants
- Analysing of existing sources extension
- Analysing of water conditions through regions (water quality, need for water, etc)
- Analysing of existing Water treatment plant operation, treatment efficiency, operational problems and possibilities of plants extension with addition of process units
- Analysing of possibility for upgrading of existing and/or construction of new Water treatment plants
- Selection of water treatment process for removal of arsenic, organic and other water pollutants, based on modern process solution
- Consider alternative options for short term, middle-term and long-term water supply solutions

Description of Actual Services Provided by ITSC:

The Pre-Feasibility study and basic design cover the following services:

- Data collection and assessment of present situation in water supply system, Establishment of objectives, key steps, general activities and preparation of time schedule, Preparation of laboratory investigation works for water quality and Implementation program
- Review of Current Law regulations
- Analysis of possibility for application of River Bank filtration as widely applied German technology for water treatment
- Assistance in Technical description of Water Treatment Plant and Water Supply System alternative solutions, Preparation of mathematical models for main pipelines
- Master Plan and Bill of Quantities
- Economic analysis of alternative solutions and selection of the optimal one and Conclusions and recommendations

Consultant's Name: ITSC Belgrade
### Assignment Name:
**FINAL DESIGN AND DETAILED DESIGN FOR POTABLE WATER TREATMENT PLANT AL REFAI – Iraq**

### Location within Country:
**IRAQ**

### Professional Staff Provided by:
**ITSC**

### No. of Staff:
25

### Name of Client:
**Ministry of Water Resources, GD for Dams and Reservoirs**

### No. of Staff Months:
- 

### Address:

### Duration of Assignment:
- 

### Approx. Value of Services (in current US$):
140,000 USA $

### Start Date (Month/Year):
October 2004

### Completion Date (Month/Year):
2006

### Name of Associated Firm(s), if any:
**ITSC, Iraq**

### No. of Months of Professional Staff Provided by Associated Firm(s):
- 

### Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:
- **Dipl.-Ing. Andra Tucovic – Project Director**
- **Dipl.-Ing. Ivan Nenkov– Mechanical Engineer**
- **Dipl.-Ing. Viseslav Ristic– Project Manager/Hydraulic Eng**
- **Dipl.-Ing. Molos Popovic – Electrical Engineer**
- **Dipl.-Ing. Andra Tucovic – Water Treatment Expert**
- **Dipl. Arch. Dragan Manojlovic - Architect**
- **Dipl.-Ing. Slobodan Mojsic – Structural Expert**

### Narrative Description of Project:
The area served by the project is located about 170 km South-East of Baghdad, 50 km North-West of Al-Nassiryah.

The Al-Refai Unified Water Project includes the following water supply facilities:

- River intake and Low Lift Pumping Station
- Water treatment plant providing output capacity of 2000 m$^3$/h
- Transport – pumping mains to EST1 and EST2, diameters 350 mm and 600 mm respectively
- Elevated steel tanks, EST1 and EST2, active volume of each 1137.0 m$^3$ and 2270.0 m$^3$ (the design will be submitted separately)

The raw water source is the Al-Gharaf river, about 150 m away from the WTP site. The raw water is extracted from the river and lifted to the plant for treatment by 4 low lift pumps, capacities 700 m$^3$/h each.

The WTP process line comprises the following treatment units: Distribution chamber and flash mixer – prechlorination, coagulant and polyelectrolyte dosing, Clariflocculators – flocculation and sedimentation, Filter inlet channel, Rapid sand filters, Ground storage tank – main chlorination/disinfection, High Lift Pumping Station – post chlorination if necessary.

The design and construction of the Al-Refai Water Supply System will yield a significant improvement in the water treatment and supply of the region. The constituent parts of the Final Design – civil, architectural, hydraulic, mechanical, process, electrical and survey – prepared by implementation of contemporary technical solutions and design, comply with the international standards and engineering best practice and guarantee the Water Supply System will provide high quality drinking water to Al-Refai consumers.
<table>
<thead>
<tr>
<th>Description of Actual Services Provided by ITSC:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Site Reconnaissance</td>
</tr>
<tr>
<td>• Establishment of Project Database</td>
</tr>
<tr>
<td>• Data Collection Memorandum</td>
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<tr>
<td>• Report on Topographical Works</td>
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<tr>
<td>• Determination of the optimum chemical dosages</td>
</tr>
<tr>
<td>• Process calculations and preparation of technical specifications</td>
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<tr>
<td>• Hydraulic calculations</td>
</tr>
<tr>
<td>• Power supply and automatisation of the plant</td>
</tr>
<tr>
<td>• Preparation of drawings and bill of quantities</td>
</tr>
<tr>
<td>• Determination of investment costs, operating costs and influence on price of potable water</td>
</tr>
<tr>
<td>• Estimation of Total Cost of the Works</td>
</tr>
<tr>
<td>• Environmental Impact Assessment Study</td>
</tr>
<tr>
<td>• Contract Administration and Project Management</td>
</tr>
</tbody>
</table>

Consultant's Name: **ITSC Belgrade**
### Assignment Name:

**PRELIMINARY DESIGN – UPGRADING OF POTABLE WATER TREATMENT PLANT STRAND – NOVI SAD, SERBIA**

### Country:

Serbia

### Location within Country:

Novi Sad

### Professional Staff Provided by:

ITSC 7

### Name of Client:

JKP Vodovod i Kanalizacija Novi Sad, Serbia

### No. of Staff:

12

### Address:

Masarikova 17, Novi Sad

### No. of Staff Months:

Duration of Assignment:

July 2005 to November 2005

### Approx. Value of Services (in current US$):

30,000 Euro

### Name of Associated Firm(s), if any:

Ehting, Serbia and Montenegro

### No. of Months of Professional Staff Provided by Associated Firm(s):

-  

### Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:

- Dipl.-Ing. Andra Tucovic – Project Director
- Dipl.-Ing. Ivan Nenkov – Mechanical Engineer
- Dipl.-Ing. Marina Vasiljevic – Project Manager
- Dipl.-Ing. Marina Vasiljevic – Potable Water Treatment Expert
- Dipl.-Ing. Bora Palisaski – Hydraulic Expert

### Narrative Description of Project:

The potable water treatment plant Strand is located in Novi Sad. Plant capacity is 5,400 m³/h of treated water.

Existing plant consists of the following processes:

- Aeration with retention for Fe and ammonia removal
- Sand filtration
- Water disinfection

Due to occasional presence of mineral oils and benzene in water, as well as the presence of TOC in water, it is foreseen to upgrade the water treatment plant with the following process units:

- Main ozonization
- GAC adsorption

In addition, UV disinfection will be added to the plant to improve the water disinfection process.
Description of Actual Services Provided by ITSC:
The Preliminary Design for Upgrading of Potable water treatment plant Strand covers the following services:

- Investigation and evaluation of relevant available data on water quality and plant operation data
- Evaluation of different alternatives regarding the position of ozone in the process line
- Analysis of necessary ozone dosage for removal of Fe, Mn, nitrate and TOC
- Determination of optimum type of ozone generators and GAC
- Process calculations and preparation of technical specifications
- Preparation of drawings and bill of quantities
- Determination of investment costs, operating costs and influence on price of potable water

Consultant's Name: ITSC Belgrade
## Firm's References
### Relevant Services Carried Out in the Last Five Years That Best Illustrate Qualifications

<table>
<thead>
<tr>
<th>Assignment Name:</th>
<th>Country:</th>
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<tbody>
<tr>
<td>DETAILED DESIGN FOR WATER INTAKE AND RAW WATER PUMPING STATION SHARK DIJALAH – IRAQ</td>
<td>IRAQ</td>
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<thead>
<tr>
<th>Location within Country:</th>
<th>Professional Staff Provided by</th>
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<tr>
<td>IRAQ</td>
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<tr>
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<th>Name of Associated Firm(s), if any:</th>
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<tbody>
<tr>
<td>ITSC, Iraq</td>
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<th>Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:</th>
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<tbody>
<tr>
<td>Dipl.-Ing. Andra Tucovic – Project Director</td>
</tr>
<tr>
<td>Dipl.ing.. Vladislav Skoko – Project Manager and structural engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Ivan Nenkov– Mechanical Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Viseslav Ristic– Hydraulic Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Milos Popovic – Electrical Engineer</td>
</tr>
<tr>
<td>Dipl. Arch. Dragan Manojlovic - Architect</td>
</tr>
<tr>
<td>Dipl.-Ing. Slobodan Mojsic – Structural Expert</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Narrative Description of Project:</th>
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</thead>
<tbody>
<tr>
<td>Water intake and raw water pumping station, capacity of 2.3 m3/s.</td>
</tr>
<tr>
<td>This serves for potable water supply of Al Rabil district.</td>
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</table>

<table>
<thead>
<tr>
<th>Description of Actual Services Provided by ITSC:</th>
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<tbody>
<tr>
<td>• Site Reconnaissance</td>
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<tr>
<td>• Establishment of Project Database</td>
</tr>
<tr>
<td>• Comment of the Applied Technical Solution; Comparison to Tender Requirements</td>
</tr>
<tr>
<td>• Hydraulic calculations</td>
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<tr>
<td>• Mechanical design</td>
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<tr>
<td>• Power supply and control of the pumps</td>
</tr>
<tr>
<td>• Preparation of drawings</td>
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<tr>
<td>• Preparation of the bill of quantities</td>
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<tr>
<td>• Selection of the equipment</td>
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<tr>
<td>• Determination of investment costs, operating costs</td>
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<tr>
<td>• Estimation of Total Cost of the Works</td>
</tr>
<tr>
<td>• Contract Administration and Project Management</td>
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</table>
Photos of the progress of the works at Shark Dijalah location.

Consultant's Name: ITSC Belgrade
Assignment Name: **PRELIMINARY DESIGN FOR WATER SUPPLY OF MUNICIPALITY POPOVICA NOVI SAD, SERBIA**  

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<th>Name of Client:</th>
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<td>JKP Vodovod i Kanalizacija, Novi Sad</td>
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<th>Address:</th>
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Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:

- Dipl.ing.. Borisal Palisaski - Project Manager and hydraulic engineer
- Dipl.-Ing. Ivan Nenkov – Mechanical Engineer
- Dipl. Arch. Dragan Manojlovic - Architect
- Dipl.-Ing. Nenad Bikicki – Structural Expert

Narrative Description of Project:

Popovica municipality is located nearby Novi Sad. Potable water in municipality is not in accordance with regulations.

The main objectives of the project are:

- Design of main water pipeline along the road to Popovica
- Design of connection pipeline form Tatarsko Brdo to main pipeline
- Design of reservoirs and pumping station
- Design of other infrastructure objects

The two options were analyzed:

- Connection to water supply system in Sremska Kamenica
- Connection to water reservoir Tatarsko Brdo

Description of Actual Services Provided by ITSC:

- Site Reconnaissance
- Program for Investigation works
- Topography
- Establishment of Project Database
- Analysis of potable water consumption for population and agriculture
- Hydraulic calculations
- Mechanical design
- Power supply and control of the pumps
- Preparation of drawings
- Preparation of the bill of quantities
- Determination of investment costs, operating costs
- Contract Administration and Project Management Works

Consultant’s Name: **ITSC Belgrade**
**Firm's References**

**Relevant Services Carried Out in the Last Five Years**

**That Best Illustrate Qualifications**

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<tr>
<td>Dipl.ing.. Dejan Baljevic Project Manager and hydraulic engineer</td>
<td>Dipl.-Ing. Ivan Nenkov– Mechanical Engineer</td>
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<tr>
<td>Dipl.-Ing. Slobodan Mojsic – Structural Expert</td>
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**Narrative Description of Project:**

Nemanovci and Pejicevi salasi municipalities are located nearby Novi Sad. Potable water in those municipalities is not in accordance with regulations, and the water supply is organized with water trucks which bring potable water form Novi Sad. The two options were analyzed:

- Connection to the main water pipeline located between Novi Sad –Subotica road and Novi Sad – Becej road
- Connection to main water pipeline near the Cenej church.

Option two is chosen as technically better and more feasible solution.

**Description of Actual Services Provided by ITSC:**

- Site Reconnaissance
- Establishment of Project Database
- Analysis of potable water consumption for population and agriculture
- Hydraulic calculations
- Mechanical design
- Power supply and control of the pumps
- Preparation of drawings
- Preparation of the bill of quantities
- Determination of investment costs, operating costs
- Contract Administration and Project Management Works

**Consultant's Name:** ITSC Belgrade
## Firm's References
### Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

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<td>Civil Faculty, Belgrade University, Serbia</td>
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<th>Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:</th>
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<tr>
<td>Dipl.-Ing. Djordje Vuksanovic – Project Director</td>
<td></td>
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<tr>
<td>Dipl.-Ing. Miomir Zikic – Project Manager and Hydraulic Engineer</td>
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<tr>
<td>Marina Vasiljevic - Water Treatment Expert</td>
<td></td>
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<tr>
<td>Dipl.-Ing. Ivan Nenkov– Mechanical Engineer</td>
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<tr>
<td>Dipl.ing. Slobodan Milosavljevic - Electrical Engineer</td>
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**Narrative Description of Project:**

Regional Water Supply System (RWSS) consists of water intake, water treatment plant (WTP), treated water pumping station and water transmission pipeline. The water transmission pipeline is divided into 2 parts: continental part and coastal part (northern and southern part). In the system are foreseen several break pressure tanks (BPT), pumping stations (PS) and reservoirs. The project starts from BPT and PS Station Reljici. Northern part of transmission pipeline starts from reservoir Djurmani to PS Budva. Southern part of transmission pipeline from reservoir Djurmani to PS Belveder. Two chlorine stations, at reservoir Djurmani and PS Budva are foreseen for maintaining of chlorine residual in the distribution system. Construction of the water supply system started in 1996, but mainly BPT and PS were constructed. Due to increase in total number of population, it was necessary to completely redesign the system and significantly upgrade project documentation from 1994.
Description of Actual Services Provided by ITSC:

- Site Reconnaissance and structural expertise of executed civil works
- Establishment of Project Database with new collected data
- Supervision of geological and topography works
- Determination of optimum pipeline routes for Northern and Southern parts
- Hydraulic calculations and Hydraulic design
- Update of design of Pumping Stations, Reservoirs and break pressure tanks
- Preparation of mathematical model of chlorine residual in the distribution system and determination of point for post chlorine dosing
- Final design of chlorine stations at Djurmani reservoir and Budva PS
- Power supply and automation
- Preparation of drawings and bill of quantities
- Determination of investment costs, operating costs and influence on price of potable water
- Estimation of Total Cost of the Works
- Land acquisition Report
- Contract Administration and Project Management

Consultant's Name: ITSC Belgrade
Firm's References
Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

Assignment Name: FINAL DESIGN OF THE WATER INTAKE, TREATMENT PLANT AND PUMP STATIONS AT THE WATER SOURCE OF THE REGIONAL WATER SUPPLY SYSTEM FOR THE COASTAL REGION OF THE REPUBLIC OF MONTENEGRO

Country: MONTENEGRO

Location within Country: Skadar lake

Professional Staff Provided by ITSC 10

Name of Client: Public Enterprise for Water Supply, Waste Water Treatment and Drainage and Solid Waste Disposal “Crnogorsko Primorje” - Budva

No. of Staff: 12

Address: Trg Sunca bb -85 310 Budva

No. of Staff Months:
Duration of Assignment:

Start Date (Month/Year): April 2007
Completion Date (Month/Year): November 2007

Approx. Value of Services (in current US$): 212,000 Euro

Name of Associated Firm(s), if any: Scott Wilson, UK

No. of Months of Professional Staff Provided by Associated Firm(s): 2

Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:
Dipl.-Ing. Andra Tucovic – Project Director
Tomasz Krawczyk - Project Manager
Shammy Pouri / Zoran Stevanovic - Hydrogeology engineers,
Dipl.-Ing. Miomir Zikic – Project Manager and Hydraulic Engineer
Marina Vasiljevic - Water Treatment Expert,
Dipl.-Ing. Ivan Nenkov - Mechanical Engineer, Dipl. Arch. Zoran Djordjevic - Architect

Narrative Description of Project:
Regional Water Supply System (RWSS) consists of water intake, water treatment plant (WTP), treated water pumping station and water transmission pipeline. The water transmission pipeline is divided into 2 parts: continental part and coastal part (northern and southern part). In the system are foreseen several break pressure tanks (BPT), pumping stations (PS) and reservoirs BPT and PS Station Reljici, Reservoir Djurmani with chlorine station for post disinfection, Northern part of transmission pipeline from reservoir Djurmani to PS Budva with post chlorination station in Budva, Southern part of transmission pipeline from reservoir Djurmani to PS Belveder with post chlorination station in Belveder

According to the Preliminary Design for Regional Water Supply System for Coastal area in Montenegro following structures are foreseen: Water intake at the water source site, raw water pumping station, pressure filters, UV disinfection, pumping main to the treated water reservoir, transmission pipeline to the break pressure tank PK1 and transmission pipeline to the Pumping Station Reljici.

Detailed investigation program in the period of 2005 -2007 confirmed excellent water quality, enough water quantity and geological and geotechnical characteristics of the soil. Investigation works served for determination of the process treatment. The Plant is for design period of 30 years, with 1500 lit/s for final stage.
Description of Actual Services Provided by ITSC:

- Site Reconnaissance
- Establishment of Project Database
- Data Collection Memorandum
- Supervision of investigation works on the water source: water quality, water source capacity, determination of zones for sanitary protection of the source
- Process calculations and preparation of technical specifications
- Hydraulic calculations
- Power supply and automatisation of the plant
- Preparation of drawings and bill of quantities
- Determination of investment costs, operating costs and influence on price of potable water
- Estimation of Total Cost of the Works
- Contract Administration and Project Management

Consultant's Name: ITSC Belgrade
STUDY OF MAINTAINING, MANAGING AND MONITORING ON EXISTING HIGH DAMS AND RESERVOIRS IN SERBIA

Contract title: STUDY REPORT ON MAINTAINING, MANAGING AND MONITORING ON EXISTING HIGH DAMS AND RESERVOIRS IN SERBIA

Location: Serbia

Employer: “SRBIJAVODE” Water Authority, Belgrade

Commencement date: 2005

Completion date: 2005

Contract price: 42,000 €

Investments cost:

Number of dams: 28

Number of dams depending of height:

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<th>Height</th>
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<td>15 – 30 m</td>
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Description of the Project: Serbia has 26 large dams with reservoir storage larger than 10 million m$^3$ and 34 large dams with reservoir storage lesser than 10 million m$^3$. Due to the economical situation in the last decades, maintenance and monitoring of these dams was not adequate. This has a direct influence on safety of the dam and region downstream of the dam. Lack of adequate management has its consequences in waste of water resources, decrease of water quality in the reservoir etc. The main objectives of this study were to do the assessment of the 28 existing large dams in Serbia and to propose measures/procedures of their monitoring, maintenance and management.

Information related to the technical and legal aspects of all 28 dams were gathered, analyzed and systematized in a form of digital Database (in Access) connected with GIS (ArcView GIS). For each dam, conclusions related to its present state are given, as well as lists of missing technical documentation and all necessary activities which have to be performed in the area of monitoring, maintenance and management. Necessary activities, which are common for all considered dams are: preparation of missing project/reports, sanation works, check of hydro-mechanical equipment, geodetic measurements of reservoir, revitalization and innovation of the monitoring system, innovation of hydrological data and related parameters, etc. Recommendations were given related to the possible pragmatic ways of achievement of necessary dam safety and increase of economical effects of considered dams and reservoirs. Special conclusions are given related to the possibility of increase of hydropower production at each dam location.

Establishment of a unique information system for all large dams and reservoirs in Serbia is a must, and that was emphasized within this study. Database developed in this study is an example how the database for all dams could be organized.

The Services Provided:

- Determining of existing dams stability
- Defining of measures for dams stability improvement
- Data and documentation collecting
- Site Reconnaissance
- Recording of sites due to preparation of Maintaining, Managing and Monitoring Reports
- Preparation of Maintaining, Managing and Monitoring Reports on Dams
- Defining of work improvement measures
- Defining of the Plan for further works
<table>
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<tr>
<th>Contract title:</th>
<th>PLANNING REPORT AND FINAL DESIGN OF LEVEE RECONSTRUCTION ALONG ADA CIGANLIJA</th>
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<td>Location/River:</td>
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Description of the Project: Ada Ciganlija is one of Belgrade’s favorable recreational area. Flood protection of this 280 ha is managed by 7.3 km long earth-levee system (constructed in period 1961 to 1968). The existing levees do not give an adequate level of protection, so enlargement of the levees was a necessary issue.

A landside levee enlargement which includes increase of levee section at the crown and landside of the levee was proposed in this project. A combined levee cross section with clay zone at the riverside and refilled sand at the landside of the levee is designed, except is some short sections where complete levee body is design of cohesive material. A seepage berm is designed at the landside for control of under-seepage problems in foundations beneath levee. Appropriate special design solution was given for the levee reconstruction at all locations with objects in the vicinity of levee (Renni-wells, pipeline crossings with the levee, objects of the rowing clubs, etc)

Increase of the levee crown is from 1.3 to 1.5 m, which leads to average reconstructed levee height of 5 m. Levee width in its crown is 7.5 m. The freeboard is in the range from 1.2 to 1.3 m. A designed levee solution guaranty protection of Ada Ciganlija from floods of return period of 1 in 100 years.

The Services Provided:

- Systematization of the available documentation and data
- Determination of levee reconstruction alternative solutions
- Engineering calculations (statical and filtration stability of levee)
- Investigation of property ownership in the zone of reconstruction
- Recommendation of optimum alternative
- Recommendation of phases in work realization
Contract title: PLANNING REPORT – RECONSTRUCTION OF LEVEES ON THE RIGHT BANK OF SAVA AND DRINA RIVER FOR PROTECTION OF MACVA

Location/River: Sava River and Drina River -SERBIA

Employer: “SRBIJAVODE” Water Authority, Belgrade

Commencement date: 2005.
Completion date: 2006.
Contract price: 27,500 €
Investments cost: 14,050,000 €
Description of the Project: Macva is one of the best agricultural regions in Serbia. It is located in western part of Serbia surrounded from two sides (north and east) by river Sava and from one side (west) by river Drina. Flood protection of this 30,000 ha of agricultural area, 130,000 of inhabitants (in 2 cities and 35 villages) as well as important industrial facilities is managed by 64 km long earth-levee system. The levee reconstruction in length of 30 km (northern part) was performed recently. Reconstruction of the remained 34 km of levees becomes an urgent issue.

In this Project the landside and riverside levee enlargements were proposed for different sectors according to the criteria (required by Client) to decrease enlargement to private property to minimum. A combined levee cross section with clay zone at the riverside and refilled sand at the landside of the levee is designed.

Increase of the levee crown is up to 1.0 m. Average reconstructed levee height in western part in length of 10 km is in the range from 2.5 to 3.5 m, a and in the eastern part in length of 24 km is app. 5 m. Levee width in the crown is 6 m. The freeboard is in the range from 1.0 in western part to 1.2 m in eastern part. A designed levee solution guaranty protection of Macva region from floods of return period of 100 years.

The Services Provided:

- Systematization of the available documentation and data
- Determination of levee reconstruction alternative solutions
- Engineering calculations (statical and filtration stability of levee)
- Investigation of property ownership in the zone of reconstruction
- Recommendation of optimum alternative
- Recommendation of phases in work realization
### Assignment Name:
**FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER TREATMENT PLANT VELIKO SELO-BEOGRAD, SERBIA**

### Country:
Serbia

### Location within Country:
Belgrade

### Professional Staff Provided by:
ITSC

### No. of Staff:
9

### Name of Client:
Agency for Construction and Land Development of Belgrade, Serbia

### No. of Staff Months:
14

### Address:
Njegoseva 84, Belgrade

### Start Date (Month/Year):
December 2004

### Completion Date (Month/Year):
December 2006

### Approx. Value of Services (in current Euro):
660,000 Euro

### Name of Associated Firm(s), if any:
SOGREAH, France
Ehting, Serbia and Montenegro

### No. of Months of Professional Staff Provided by Associated Firm(s):
-

### Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:

- **Dipl.-Ing. Jean Luis Aude** – Project Director
- **Dipl.-Ing. Marina Vasiljevic** – Wastewater Treatment Expert and Deputy Project Manager
- **Dipl.-Ing. Jean Mark Bolf** – Wastewater Treatment Expert
- **Dipl.-Ing. Borislav Palisaski** – Hydraulic Expert
- **Dragoslav Grujic** – Economic Expert

### Narrative Description of Project:

The central sewerage system of Belgrade consists of several main trunks, sewerage pumping stations and Interceptor. The wastewater from the Central Sewerage system will be treated on the WWTP Veliko Selo. It is located on the bank of the Danube River. The plant is designed for final stage and a total of 1.6 mil Population Equivalents. Today, municipal and industrial wastewater is discharged without treatment into the Danube River. In the future, the entire wastewater of Belgrade shall be treated in compliance to the European Union guidelines.

### Scope of activities and project objectives are:

- Optimization of micro location of the plant
- Technical assistance to the Client for financial sources identification
- Professional assistance to the Client in project organisation
- Project Plan Preparation
- Establishment of different technical alternatives and their optimization
- Preparation of programs for investigation works
- Preparation of Environmental Impact Assessment Study
Feasibility Study and Preliminary Design Wastewater Treatment Plant Veliko Selo-Beograd, Serbia

Description of Actual Services Provided by ITSC:

The Feasibility study for the wastewater treatment plant Veliko Selo covers the following services:

- Investigation and evaluation of relevant planning data
  - Wastewater quantities and pollution load
  - Data and boundary conditions of the planned drainage system
  - Geological and soil-mechanical data
  - Hydrologic data (water levels of the Danube for different discharge occurrences)
- Evaluation of different process alternatives: Conventional Activated Sludge Process, Bioaerated Filtration and SBR technology. Two alternatives for sludge treatment were analysed: anaerobic sludge treatment with biogas production and sludge incineration
- Determination of investment costs, operating costs and waste water tariffs, Economic analysis
- Proof of the feasibility and investigation of applicable financial models
- Preparation of Preliminary Design for chosen process alternative

Consultant's Name: ITSC Belgrade
**Assignment Name:**

**FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER TREATMENT PLANT KRNJACA - BEOGRAD, SERBIA**

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<tr>
<th>Dipl.-Ing. Michael Leinhos– Project Director</th>
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<th>Dipl.-Ing. Jefitic Dragomir – Hydraulic Expert</th>
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<tr>
<th>Dragomir Grujic – Economic and Financial Expert</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Narrative Description of Project:</th>
</tr>
</thead>
</table>

The suburb Krnjaca is situated northerly of the Belgrade city on the northern Danube bank. The wastewater of this small town, which will have approx.100,000 inhabitants, is discharged without treatment into the Danube. In the future, the entire wastewater of this locality shall be cleaned up in compliance to the European Union guidelines. The drainage system of Krnjaca exists rudimentarily and dewatered to the bank area of the Danube. Consequently, the construction of the planned wastewater treatment plant in this area is given. As the existing Danube dyke has no basic sealing system, the WWTP site is flooded by seeping groundwater. Within the scope of the project work, the most feasible economical solution for the WWTP in the flooding-endangered area is to be found considering the difficult, location-specific boundary conditions.
Feasibility Study and Preliminary Design Wastewater Treatment Plant Krnjaca - Beograd, Serbia

Description of Actual Services Provided by ITSC:

The study for the wastewater treatment plant Krnjaca covers the following services:

- Investigation and evaluation of relevant planning data
  - Wastewater quantities and pollution load
  - Data and boundary conditions of the planned drainage system
  - Geological and soil-mechanical data
  - Hydrologic data (water levels of the Danube for different discharge occurrences)
- Evaluation of different process alternatives (Activated Sludge process, SBR and Bioaerated filtration) regarding the local conditions in a strongly flooding-endangered area (arrangement of plant structures). All process alternative have complete sludge treatment prior to disposal to landfill
- Determination of investment costs, operating costs and waste water tariffs
- Proof of the feasibility and investigation of applicable financial models
- Preparation of Preliminary Design for chosen process alternative

Consultant's Name: ITSC Belgrade
Assignment Name: **FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER TREATMENT PLANT OSTRUZNICA – BEOGRAD, SERBIA**

<table>
<thead>
<tr>
<th>Location within Country:</th>
<th>Country: Serbia and Montenegro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgrade</td>
<td>Professional Staff Provided by ITSC</td>
</tr>
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<table>
<thead>
<tr>
<th>Name of Client:</th>
<th>No. of Staff:</th>
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<tr>
<td>Agency for Construction and Land Development of Belgrade, Serbia</td>
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<table>
<thead>
<tr>
<th>Name of Associated Firm(s), if any:</th>
<th>No. of Months of Professional Staff Provided by Associated Firm(s):</th>
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<tr>
<td>KOCKS Consult GmbH, Ehting, Serbia and Montenegro</td>
<td>-</td>
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</table>

<table>
<thead>
<tr>
<th>Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipl.-Ing. Michael Leinhos – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Marina Vasiljevic – Wastewater Treatment Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Jefic Dragomir – Hydraulic Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Ivan Nenkov – Mechanical Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Peter Kirstenmacher – Project Manager</td>
</tr>
<tr>
<td>Dipl.-Ing. Klaus Klein – Mechanical Engineer</td>
</tr>
<tr>
<td>Dragoslav Grujic – Economic and Financial Analysis</td>
</tr>
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<table>
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<tr>
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<th>Completion Date (Month/Year):</th>
<th>Approx. Value of Services (in current US$):</th>
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<tbody>
<tr>
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<td>449,000 Euro</td>
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<tbody>
<tr>
<td>Njegoseva 84, Belgrade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Narrative Description of the Project:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The suburb Ostruznica is situated southwesterly of the Belgrade city on the bank of the Sava River. The wastewater of this small town, which will have approx.100,000 inhabitants, is discharged without treatment into the Sava River. In the future, the entire wastewater of this locality shall be cleaned up in compliance to the European Union guidelines. All conceivable locations for the WWTP are situated on the bank of the Sava River in the flooding-endangered area. As the existing dyke has no basic sealing system, the site is flooded by seeping groundwater, during longer persisting spate.</td>
</tr>
</tbody>
</table>
Feasibility Study and Preliminary Design Wastewater Treatment Plant Ostruznica – Beograd, Serbia

Description of Actual Services Provided by ITSC:

The study for the wastewater treatment plant Ostruznica covers the following services:

- Investigation and evaluation of relevant planning data
  - Wastewater quantities and pollution load
  - Data and boundary conditions of the planned drainage system
  - Geological and soil-mechanical data
  - Hydrologic data (water levels of the Danube for different discharge occurrences)
- Evaluation of different process alternatives regarding the local conditions in a strongly flooding-endangered area (arrangement of plant structures)
- Determination of investment costs, operating costs and waste water tariffs, Proof of the feasibility
- Preparation of Preliminary Design for chosen process alternative

Consultant's Name: ITSC Belgrade
**Assignment Name:**
**FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER PUMPING STATION KRNJACA – BEOGRAD, SERBIA**

| Country: | Serbia |
| Location within Country: | Belgrade |
| Professional Staff Provided by | ITSC  |
| No. of Staff: | 13 |
| Name of Client: | Agency for Construction and Land Development of Belgrade, Serbia |
| Address: | Njegoseva 84, Belgrade |
| No. of Staff Months: | |
| Duration of Assignment: | |
| Start Date (Month/Year): | November 2004 |
| Completion Date (Month/Year): | February 2006 |
| Approx. Value of Services (in current Euro): | 28,000 Euro |
| Name of Associated Firm(s), if any: | Leading Partner EHTING, Serbia and Montenegro |
| No. of Months of Professional Staff Provided by Associated Firm(s): | - |
| Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed: | Dipl.-Ing. Momcilo Bikicki – Project Director  
Dipl.-Ing. Miomir Zikic – Project Manager  
Dipl.-Ing. Ivan Nenkov – Mechanical Engineer  
Dipl.-Ing. Milos Popovic – electrical Engineer |

**Narrative Description of Project:**
The suburb Krnjaca is situated northerly of the Belgrade city on the northern Danube bank. The wastewater of this small town, which will have approx. 100,000 inhabitants, is discharged without treatment into the Danube. The drainage system of Krnjaca exists rudimentarily and dewatered to the bank area of the Danube.
The first step is design of raw wastewater and treated water pumping station.
Design of wastewater treatment plant is not in the scope of this project
Within the scope of the project work, the most feasible pumping station design is chosen.

**Description of Actual Services Provided by ITSC:**
The Feasibility study and preliminary design for the wastewater pumping station Krnjaca covers the following services:
- Investigation and evaluation of relevant planning data
  - Wastewater quantities
  - Data and boundary conditions of the planned drainage system
  - Geological and soil-mechanical data
  - Hydrologic data (water levels of the Danube for different discharge occurrences)
- Evaluation of different alternatives regarding the local conditions
- Determination of investment costs and operating costs, Proof of the feasibility
- Preparation of Preliminary Design for chosen alternative for raw wastewater and effluent pumping stations

**Consultant's Name:**
ITSC Belgrade
**Assignment Name:**

**FINAL DESIGN FOR DISCHARGE PIPELINE FOR SEWERAGE PUMPING STATION C-7 IN NOVI SAD NOVI SAD, SERBIA**

<table>
<thead>
<tr>
<th>Location within Country:</th>
<th>Country:</th>
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<tbody>
<tr>
<td>Serbia</td>
<td>Serbia</td>
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</table>

**Name of Client:**

JKP Vodovod i Kanalizacija, Novi Sad

**Address:**

Masarikova 17, Novi Sad

**Duration of Assignment:**

Start Date (Month/Year): April 2005

Completion Date (Month/Year): November 2005

**Approx. Value of Services (in current Euro):** 5,000 Euro

**Name of Associated Firm(s), if any:**

EHTING, Serbia and Montenegro

**Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:**

- Dipl.ing.. Dejan Baljevic - Project Manager and hydraulic engineer
- Dipl.-Ing. Ivan Nenkov - Mechanical Engineer
- Dipl.-Ing. Milos Popovic - Electrical Engineer
- Dipl. Arch. Dragan Manojlovic - Architect
- Dipl.-Ing. Slobodan Mojsic - Structural Expert

**Narrative Description of Project:**

Sewerage pumping station C7 is located in Kisacka street in Novi Sad and belongs to the north part of the combined sewerage system for large shield area, including industrial complex Jug, Jase Tomca Bulevar and DTD channel.

This sewerage pumping station will be temporary and will be in operation until construction of sewerage main Koste Sokice, from Kisacka street to the sewerage pumping station GC-2. Sewerage pumping station will serve for transfer of wastewater to main sewerage main in Dositejeva street.

**Description of Actual Services Provided by ITSC:**

- Site Reconnaissance
- Establishment of Project Database
- Hydraulic calculations
- Mechanical design
- Power supply and control of the pumps
- Preparation of drawings
- Preparation of the bill of quantities
- Selection of the equipment
- Determination of investment costs and operating costs
- Estimation of Total Cost of the Works
- Contract Administration and Project Management

**Consultant's Name:** ITSC Belgrade
Firm’s References
Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

<table>
<thead>
<tr>
<th>Assignment Name:</th>
<th>Country:</th>
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<tbody>
<tr>
<td><strong>FEASIBILITY STUDY FOR SEWERAGE DISPOSAL FOR THE COASTAL REGION IN MONTENEGRO</strong></td>
<td>Montenegro</td>
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<table>
<thead>
<tr>
<th>Location within Country:</th>
<th>Professional Staff Provided by</th>
</tr>
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<tbody>
<tr>
<td>Coastal region in Montenegro</td>
<td>ITSC 10</td>
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<table>
<thead>
<tr>
<th>Name of Client:</th>
<th>No. of Staff:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KfW Germany / VODACOM d.o.o., Tivat, Montenegro</strong></td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Address:</th>
<th>No. of Staff Months:</th>
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<td>Il Dalmatinske 11</td>
<td>Duration of Assignment:</td>
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<table>
<thead>
<tr>
<th>Start Date (Month/Year):</th>
<th>Completion Date</th>
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<tr>
<td>July 2006</td>
<td>November 2006</td>
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| Approx. Value of Services (in current Euro):                   | 345,000 Euro         |

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<th>Name of Associated Firm(s), if any:</th>
<th>No. of Months of Professional Staff Provided by Associated Firm(s):</th>
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<tr>
<td><strong>KOCKS Consult , GmbH</strong></td>
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<table>
<thead>
<tr>
<th>Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipl.-Ing. Michael Leinhos – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Peter Kirstenmacher – Project Manager</td>
</tr>
<tr>
<td>Dipl.-Ing. Marina Vasiljevic – Wastewater Treatment Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Andjelic Branimir – Hydraulic Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Ivan Nenkov – Mechanical Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Hilmar Rave – Hydraulic Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Klaus Klein – Mechanical Engineer</td>
</tr>
<tr>
<td>Dipl. Ecc. Dragomic Grujic – Economic and Financial Expert</td>
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</table>

<table>
<thead>
<tr>
<th>Narrative Description of Project:</th>
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</thead>
</table>
| The coastal region of Montenegro has an important relevance for the development of tourism in Montenegro. Currently the number of tourists is increasing. The environmental problems are also increasing in accordance to the economic development of this region. Especially the insufficient wastewater system will be an increasing threat for the development of the region because of the inadequate sewer networks and the lack of sewage treatment.  

The wastewater of coastal region is discharged without treatment into the Adriatic Sea. In the future, the entire wastewater of this locality shall be cleaned up in compliance to the European Union guidelines.  

The coastal area consists of following municipalities: Heceg Novi, Kotor, Bydva, Bar and Ulcinj. In addition, municipality of Cetinje, located at inland of the area is also in the scope of this project.  

To mitigate the environmental problems the KfW intends to provide further 30 million Euro for the improvement of the sewage situation. For the integration of these funds into a reasonable long-term development concept, the feasibility study for the coastal region of Montenegro was prepared.  

Within the scope of the project work, the most feasible economical solutions for the sewerage networks and WWTP’s are to be found considering the difficult, location-specific conditions.  

The project measures were divided into priority project measures and long-tem projects measures.
Feasibility Study For Sewerage Disposal For The Coastal Region In Montenegro

Description of Actual Services Provided by ITSC:
The Feasibility study for sewerage disposal for the coastal region in Montenegro covers the following services:

- Data collection and analysis
- Investigation works
  - measurements of wastewater flow on the main discharge outfalls
  - measurements of wastewater quality on the main discharge outfalls
  - measurement of sea water quality near the main discharge outfalls
  - inspection of the main sea outfalls by divers, and preparation of photos
  - investigation of the existing pumping stations
- Evaluation of different sewer network options
- Analysis of process alternatives for all Municipalities (Activated Sludge process, SBR, Trickling and Bioaerated filtration) regarding the local conditions (arrangement of plant structures). All process alternative have complete sludge treatment prior to disposal to landfill
- Determination of investment costs, operating costs and waste water tariffs
- Proof of the feasibility and investigation of applicable financial models
- Phased investment plans were elaborated which included priority measures for each municipality
- Improvement of the environmental and economic situation in the coastal region
- Preparation of Conceptual Report and Feasibility Study
- Preparation of Preliminary Design for selected sewer networks for all Municipalities

Consultant's Name: ITSC Belgrade
### Assignment Name:
**PRELIMINARY DESIGN FOR SEWAGE SYSTEM IN BATAJNICA SETTLEMENT, BELGRADE, SERBIA**

<table>
<thead>
<tr>
<th>Location within Country:</th>
<th>Country:</th>
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<tbody>
<tr>
<td>Batajnica, Belgrade</td>
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<tr>
<th>Name of Client:</th>
<th>No. of Staff:</th>
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<tr>
<td>Agency for Land Development and Construction Belgrade, Serbia</td>
<td>8</td>
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<thead>
<tr>
<th>Address:</th>
<th>No. of Staff Months:</th>
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<tr>
<td>Njegoseva 84, Belgrade</td>
<td>Duration of Assignment: 6 months</td>
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<tbody>
<tr>
<td>September 2006</td>
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<tr>
<th>Name of Associated Firm(s), if any:</th>
<th>No. of Months of Professional Staff Provided by Associated Firm(s):</th>
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<table>
<thead>
<tr>
<th>Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipl.-Ing. Viseslav Ristic – Project Manager and Hydraulic Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Aleksandar Balatov – Geological Engineer</td>
</tr>
<tr>
<td>Dipl.ing – Slobodan Mojsic – Civil - Structural Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Tosa Ninkov – Civil Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Miftar Seljemovic – Geological Engineer</td>
</tr>
</tbody>
</table>

**Narrative Description of Project:**

The suburb Batajnica is situated near the railway Belgrade – Zagreb and Batajnica airport. According to City Plan of Belgrade the Batajnica, issued in 1978 area covers 500 ha, and plan of roads network, sewerage system and storm water system. The sewerage system was constructed only for one part of suburb. Construction of buildings in some area did not follow the plan, as well as the construction of key elements in sewerage system. The sewerage pumping station does not exist. Construction of the main trunk lines is not finished.

The goals of the project are to determine the main directions for trunk sewers lines, to design secondary network and to design storm water network.

The first step was to analyse present conditions and capacity of existing sewer lines, for the present status of buildings in the area. According to that all wastewater will be directed to existing sewers. Necessary adjustments of the sewage system to present situation by outlet collector displacement to the middle of the settlement were analysed. The best solution for storm water and sewerage system has been proposed.

The second step was to design connection between exiting and designed network of the sewerage network in Batajnica settlement, fully in accordance with new designed sewerage pumping station Batajnica.
Preliminary Design for Sewage System in Batajnica Settlement, Belgrade

Description of Actual Services Provided by ITSC:

Preliminary Design for Sewage System in Batajnica Settlement covers the following services:
- Collection, review and analysis of available documents
- Site reconnaissance
- Investigation and evaluation of relevant planning data
  - Wastewater quantities and pollution load
  - Data and boundary conditions of the planned drainage system
  - Geological and soil-mechanical data
- Preparation of design for adjustment of present roads
- Hydraulic calculations for existing and new sewers
- Hydraulic analysis of capacities of existing sewers
- Preparation of Preliminary Design for chosen alternative
- Preparation of textual part which consist of the following parts: geo-mechanical conditions, technical report, hydraulic calculations, bill of quantities
- Preparation of general layout, longitudinal sections for designed sewerage pipelines, cross sections for designed sewerage pipelines
- Determination of sewer pipelines materia
- Preparation of Bill of Quantities for sewerage system and storm water system

Consultant's Name: ITSC Belgrade
<table>
<thead>
<tr>
<th>Assignment Name: PRELIMINARY DESIGN FOR SEWAGE TRUNK LINE VELIKA MOSTANICA, SERBIA</th>
<th>Country: Serbia</th>
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<tbody>
<tr>
<td>Location within Country: Belgrade</td>
<td>Professional Staff Provided by ITSC 4</td>
</tr>
<tr>
<td>Name of Client: Agency for Land Development and Construction Belgrade, Serbia</td>
<td>No. of Staff: 7</td>
</tr>
<tr>
<td>Address: Njegoseva 84, Belgrade</td>
<td>No. of Staff Months:</td>
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<tr>
<td>Start Date (Month/Year): September 2006</td>
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<td>Completion Date (Month/Year): January 2007</td>
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Name of Associated Firm(s), if any: No. of Months of Professional Staff Provided by Associated Firm(s): -

Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:

Dipl.-Ing. Miomir Zikic – Project Manager And Hydraulic Engineer
Dipl.-Ing. Aleksandar Balatov – Geological Engineer – surveying engineer
Dipl.-Ing. Djordje Uzelac – Civil Engineer

Narrative Description of Project:

General Urban Plan, issued in 1991, covers settlements Umka, Pecani, Ostruznica, Velika Mostanica and part od Sremica. One of the primary sewage trunk lines is trunk line which collects wastewater from Velika Mostanica and part of Sremica. This trunk line has to collect wastewater and distribute to sewage trunk line and future Wastewater Treatment Plant Ostruznica.

The route of sewerage trunk line follows Mostanica river and Ostruznica river. The total length of route is 10,000 m.

**Preliminary Design For Sewage Collector Velika Mostanica, Belgrade**

Description of Actual Services Provided by ITSC:

Preliminary Design for Sewage Trunk line Velika Mostanica covers the following services:

- Collection, review and analysis of available documents
- Site reconnaissance
- Investigation and evaluation of relevant planning data
  - Wastewater quantities and pollution load
  - Data and boundary conditions of the planned drainage system
- Preparation of topography maps in digital format
- Geological and geotechnical investigation works
- Preparation of geological and geotechnical report
- Evaluation of different alternatives regarding the local conditions
  - Determination of collector direction
  - Hydraulic calculations
- Determination of investment costs and operating costs
- Preparation of Preliminary Design for chosen alternative for primary sewage system:

Consultant's Name: ITSC Belgrade
## Firm's References
### Relevant Services Carried Out in the Last Five Years That Best Illustrate Qualifications

<table>
<thead>
<tr>
<th>Assignment Name:</th>
<th>Country:</th>
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<tbody>
<tr>
<td><strong>DETAILED DESIGN FOR STORM WATER PIPELINE IN JUG BOGDANA STREET, SERBIA</strong></td>
<td>Serbia</td>
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<table>
<thead>
<tr>
<th>Location within Country:</th>
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<tr>
<td>Prokuplje</td>
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<table>
<thead>
<tr>
<th>Name of Client:</th>
<th>No. of Staff:</th>
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<tbody>
<tr>
<td>Prokuplje Municipality, Prokuplje</td>
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<table>
<thead>
<tr>
<th>Address:</th>
<th>No. of Staff Months:</th>
</tr>
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<tbody>
<tr>
<td>Nikodija Stojanovica 2, Prokuplje</td>
<td>2</td>
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<tr>
<th>Start Date (Month/Year):</th>
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<tbody>
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<td>July 2006</td>
<td>August 2006</td>
<td>5,000 Euro</td>
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Name of Associated Firm(s), if any: -

No. of Months of Professional Staff Provided by Associated Firm(s): -

Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:

- Dipl.-Ing. Miomir Zikic – Project Manager and Hydraulic Engineer
- Dipl.ing – Slobodan Mojsic – Civil - Structural Engineer

**Narrative Description of Project:**

Jug Bogdana Street is located in the centre of Prokuplje city.

In the scope of Jug Bogdana Street reconstruction, from junction to main road Prokuplje and Kursumlija to Knez Mihailova Street, which will be changed to pedestrian zone, is foreseen construction of storm water system. The existing sewerage system for this street is separate.

Detailed Design also included removal of existing asphalt layer on the road and footpaths, and construction of underground gallery for electrical and public lighting installations.

Other infrastructure works are out of the scope of the Project.

**Detailed Design for Storm Water Sewage in Jug Bogdana Street, Prokuplje**

Description of Actual Services Provided by ITSC:

- Collection, review and analysis of available documents
- Site reconnaissance
- Hydraulic calculations
- Preparation of textual part which consist of following parts:
  - technical report
  - hydraulic calculations
  - technical conditions for execution of the works
  - bill of quantities with material specification
- Preparation of following drawings:
  - general layout in scale 1:10000
  - general plan of hydro-technical infrastructure
  - storm water sewage layout in scale 1:1000
  - hydraulic profile of storm water sewage in scale 1:100/1000
  - characteristic cross section in scale 1:100/100
  - details required for execution of the works
- Prepared documentation is in accordance with relevant regulations.
Assignment Name: **TECHNICAL CONTROL OF DETAILED DESIGN FOR WASTEWATER PUMPING STATION “RIBNICA”, KRALJEVO, SERBIA**  
Country: Serbia  
Location within Country: Kraljevo  
Professional Staff Provided by ITSC: 4  
Name of Client: Agency for Planning and Construction “Kraljevo”  
No. of Staff: 4  
Address: Hajduk Veljkova, Kraljevo  
No. of Staff Months:  
Duration of Assignment:  
Start Date (Month/Year): December 2005  
Completion Date (Month/Year): February 2006  
Approx. Value of Services (in current Euro): 1,100 Euro  
Name of Associated Firm(s), if any:  
No. of Months of Professional Staff Provided by Associated Firm(s):  
Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:  
Technical Control:  
- Dipl.-Ing. Ivan Nenkov – Mechanical Engineer  
- Dipl.-Ing. Slobodan Mojsic – Civil Engineer  
- Dipl.-Ing. Miomir Zikic – Hydraulic Engineer  
- Dipl.-Ing. Vesna Ilic Milovanovic – Electrical Engineer  
Narrative Description of Project:  
Objectives of technical control were to give professional opinion, comments and suggestions on Detailed design for sewage pumping station “Ribnica” prepared by company “Ruding” from Belgrade, Serbia.  
Technical control Committee members were required to give comments and suggestion completely according to Serbian regulation on planning and construction.  
Description of Actual Services Provided by ITSC::  
Technical control of Detailed design for sewage pumping station “Ribnica” covered the following services:  
- Detailed evaluation of the Project  
  - Detailed evaluation of Hydraulic Design  
  - Detailed evaluation of Mechanical Design  
  - Detailed evaluation of Electrical Design  
  - Detailed evaluation of Structural Design  
- Professional opinion according to Serbian regulation on planning and construction  
- Presentation of comments and suggestions  
- Submission of Report on Technical Control to the Client and Consultant  
- Approval of the Project after removing and adjustment of eventual comments and suggestions by Consultant  
Consultant’s Name: ITSC Belgrade
### Assignment Name:
**DETAILED DESIGN**
**WASTEWATER PUMPING STATION WITH SCREENS**
**SABAC, SERBIA**

<table>
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<table>
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<tr>
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<thead>
<tr>
<th>Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipl.-Ing. Miomir Zikic – Project Manager</td>
</tr>
<tr>
<td>Dipl.-Ing. Andjelic Branimir – Hydraulic Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Slobodan Mojsic – Civil Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Ivan Nenkov – Mechanical Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Dragan Manojlovic – Architectural Engineer</td>
</tr>
<tr>
<td>Dipl.-Ing. Vesna Ilic Milovanovic – Electrical Engineer</td>
</tr>
</tbody>
</table>

**Narrative Description of Project:**

City of Sabac in Serbia has problems with wastewater disposal due to lack of wastewater treatment plant. The Updated version of Preliminary Design was finished in 2005. According to this design, it is foreseen to have raw wastewater pumping station on the entrance of wastewater treatment plant.

Due to lack of investments, the municipality of Sabac has decided to start with construction of preliminary treatment only, which will serve as temporary solution and will consist of following structures:
- Coarse and fines screens
- Raw wastewater pumping station
- Sewerage pipeline to the Sava river
- Power supply station

The main purpose of Sewage Pumping Station for raw wastewater, located after automatic coarse screens, is wastewater transfer to bioaeration basins, due to lack of available head.

Detailed design was based on preliminary design for central WWTP Sabac and Preliminary design for sewage pipeline development and reconstruction.

Wastewater pumping station will be located near “Cerski obodni kanal”, near its discharge to Sava River, after the factory Beli limovi and Zorka Holding factory.

Detailed design of wastewater treatment plant is not in the scope of this project.
**Description of Actual Services Provided by ITSC:**

The Detailed design for the wastewater pumping station Sabac covers the following services:

- Process Design
- Hydraulic Design for pumping station and Sewage collector – from sewage pumping station to the recipient
- Mechanical Design
- Architectural Design
- Electrical Design – power supply
- Electrical Design – control and automatisation of the plant
- Civil design – structural calculations for buildings with equipment
- Bill of quantities

**Consultant's Name:** ITSC Belgrade
### Assignment Name:
**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR WASTEWATER TREATMENT PLANT VELIKO SELO, BELGRADE, SERBIA**

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<tr>
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<th>ITSC</th>
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<tr>
<th>Name of Client:</th>
<th><strong>Agency for Construction and Land Development of Belgrade, Serbia</strong></th>
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| No. of Staff provided by ITSC | 4 |

<table>
<thead>
<tr>
<th>Address:</th>
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| No. of Staff Months: | 5 |

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<th>Start Date (Month/Year):</th>
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<thead>
<tr>
<th>Completion Date (Month/Year):</th>
<th>2005</th>
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| Approx. Value of Services (in current US$): | 90,000 Euro |

| Name of Associated Firm(s), if any: | **SOGREAH, France**
**Ehting, Serbia and Montenegro** |
|-------------------------------------|-----------------------------|

| No. of Months of Professional Staff Provided by Associated Firm(s): | - |

| Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed: | **Dipl.-Ing. Jean Luis Aude– Project Director**
**Dipl.-Ing. Marina Vasiljevic– Wastewater Treatment Expert**
**Dipl.-Ing. Miomir Vasiljevic – Environmental Expert**
**Dipl.-Ing Frederique Mourout – Environmental Expert** |
|-------------------------------------------------------------|-----------------------------------------------------|

| Narrative Description of Project: | Environment Impact Assessment Study is part of Feasibility Study and Preliminary Design WWTP Veliko Selo, prepared for Veliko Selo Wastewater Treatment Project. The purpose of Environment Impact Assessment Study is obtaining of authorization for project evaluation in accordance with Serbian Laws. Further more, if Belgrade Institutions decide to proceed with idea of building WWTP Veliko Selo, the Study must be harmonized with EU recommendations and main IFIs donors. Scope of activities and project objectives are:  
• Investigation and data collecting  
• Scope of legal regulations and environmental framework important for EIA Study  
• WWTP Veliko Selo site description and status  
• Analyzing of Danube River characteristics  
• Description of the plant and project objectives regarding the environment (inflow and outflow water)  
• Environmental impact analysis (prediction of impacts that future WWTP will have of the environment during construction and operation phase)  
• Mitigation measures (measures that must be conducted due to impacts elimination and control)  
• Conclusions and recommendations of the next stage of the project |
|----------------------------------|---------------------------------------------------------------------------------------------------------------|
Description of Actual Services Provided by ITSC:

Environment Impact Assessment Study for the wastewater treatment plant Veliko Selo covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data
  - Data on WWTP Veliko Selo location and status (description, topography, climate, geological structure, biological diversity, protected areas, land property, settlements, agriculture, roads, historical monuments)
  - Data on Danube River characteristics (level regime, river bed, islands, water level, water temperature, river ice, river deposits, river quality)
  - Data on inflow and outflow water quality
- Evaluation of different process alternatives regarding the local conditions in a strongly flooding-endangered area (arrangement of plant structures)
- Determination of mitigation measures costs

Consultant's Name: ITSC Belgrade
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<td>FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER TREATMENT PLANT KRNJACA - BEOGRAD, SERBIA</td>
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<th>Location within Country:</th>
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<td>Belgrade</td>
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<td>Ehting, Serbia and Montenegro</td>
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<thead>
<tr>
<th>Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:</th>
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<tbody>
<tr>
<td>Dipl.-Ing. Michael Leinhos – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Marina Vasiljevic – Wastewater Treatment Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Jeftic Dragomir – Hydraulic Expert</td>
</tr>
<tr>
<td>Dipl.-Ing. Peter Kirstenmacher – Project Manager</td>
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<table>
<thead>
<tr>
<th>Narrative Description of Project:</th>
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<tbody>
<tr>
<td>Environment Impact Assessment Study is part of Feasibility Study and Preliminary Design WWTP Krnjaca, prepared for Krnjaca Wastewater Treatment Project. The purpose of Environment Impact Assessment Study is obtaining of authorization for project evaluation in accordance with Serbian Laws. Further more, if Belgrade Institutions decide to proceed with idea of building WWTP Krnjaca, the Study must be harmonized with EU recommendations and main IFIs donors.</td>
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<table>
<thead>
<tr>
<th>Scope of activities and project objectives are:</th>
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<td>Investigation and data collecting</td>
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<tr>
<td>Scope of legal regulations and environmental framework important for EIA Study</td>
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<tr>
<td>WWTP Krnjaca site description and status</td>
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<tr>
<td>Analyzing of Danube River characteristics</td>
</tr>
<tr>
<td>Description of the plant and project objectives regarding the environment (inflow and outflow water)</td>
</tr>
<tr>
<td>Environmental impact analysis (prediction of impacts that future WWTP will have of the environment during construction and operation phase)</td>
</tr>
<tr>
<td>Mitigation measures (measures that must be conducted due to impacts elimination and control)</td>
</tr>
<tr>
<td>Conclusions and recommendations of the next stage of the project</td>
</tr>
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</table>
Description of Actual Services Provided by ITSC:

Environment Impact Assessment Study for the wastewater treatment plant Krnjaca covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data
  - Data on WWTP Krnjaca location and status (description, topography, climate, geological structure, biological diversity, protected areas, land property, settlements, agriculture, roads, historical monuments)
  - Data on Danube River characteristics (level regime, river bed, islands, water level, water temperature, river ice, river deposits, river quality)
  - Data on inflow and outflow water quality
- Evaluation of different process alternatives regarding the local conditions in a strongly flooding-endangered area (arrangement of plant structures)
- Determination of mitigation measures costs

Consultant's Name: ITSC Belgrade
## Assignment Name:
**FEASIBILITY STUDY AND PRELIMINARY DESIGN WASTEWATER TREATMENT PLANT OSTRUZNICA - BEOGRAD, SERBIA**

### Country:
Serbia

### Location within Country:
Belgrade

### Professional Staff Provided by
ITSC

| No. of Staff | 4 |

### Name of Client:
Agency for Construction and Land Development of Belgrade, Serbia

### No. of Staff:
5

### Address:
Njegoseva 84, Belgrade

### No. of Staff Months:

### Duration of Assignment:

### Start Date (Month/Year):
2004

### Completion Date (Month/Year):
2005

### Approx. Value of Services (in current US$):
90,000 Euro

### Name of Associated Firm(s), if any:
KOCKS, Germany
Ehting, Serbia and Montenegro

### No. of Months of Professional Staff Provided by Associated Firm(s):
-

### Name of Senior Staff (Project Director/Co-ordinator, Team Leader) involved and functions performed:
- Dipl.-Ing. Michael Leinhos– Project Director
- Dipl.-Ing. Marina Vasiljevic– Wastewater Treatment Expert
- Dipl.-Ing. Jeftic Dragomir – Hydraulic Expert
- Dipl.-Ing. Peter Kirstenmacher – Project Manager

### Narrative Description of Project:
Environment Impact Assessment Study is part of Feasibility Study and Preliminary Design WWTP Ostruznica, prepared for Ostruznica Wastewater Treatment Project.
The purpose of Environment Impact Assessment Study is obtaining of authorization for project evaluation in accordance with Serbian Laws. Further more, if Belgrade Institutions decide to proceed with idea of building WWTP Ostruznica, the Study must be harmonized with EU recommendations and main IFIs donors.
Scope of activities and project objectives are:
- Investigation and data collecting
- Scope of legal regulations and environmental framework important for EIA Study
- WWTP Ostruznica site description and status
- Analyzing of Sava River characteristics
- Description of the plant and project objectives regarding the environment (inflow and outflow water)
- Environmental impact analysis (prediction of impacts that future WWTP will have of the environment during construction and operation phase)
- Mitigation measures (measures that must be conducted due to impacts elimination and control)
- Conclusions and recommendations of the next stage of the project
Description of Actual Services Provided by ITSC:

Environment Impact Assessment Study for the wastewater treatment plant Ostruznica covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data
  - Data on WWTP Ostruznica location and status (description, topography, climate, geological structure, biological diversity, protected areas, land property, settlements, agriculture, roads, historical monuments)
  - Data on Sava River characteristics (level regime, river bed, islands, water level, water temperature, river ice, river deposits, river quality)
  - Data on inflow and outflow water quality
- Evaluation of different process alternatives regarding the local conditions in a strongly flooding-endangered area (arrangement of plant structures)
- Determination of mitigation measures costs

Consultant's Name: ITSC Belgrade
### Firm's References
**Relevant Services Carried Out in the Last Five Years That Best Illustrate Qualifications**

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<td><strong>ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR TAQ-TAQ DAM – IRAQ</strong></td>
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<tr>
<td>Dipl.-Ing. Vicko Letica – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Natasa Marinkovic – Project Manager</td>
</tr>
<tr>
<td>Dipl.-Ing. Miomir Vasiljevic – Environmental Expert</td>
</tr>
</tbody>
</table>

**Narrative Description of Project:**

Taq – Taq is located on the Lesser Zab River about 5 km upstream from the Taq-Taq Town. The purpose of the Taq-Taq reservoir is: irrigation, flood control and hydroelectric generating. Furthermore, Taq-Taq dam reservoir will be regulating reservoir for water releases from the power station of existing Dokan Dam, the arch dam which is located upstream from the location of the Taq-Taq Dam.

Environment Impact Assessment Study is part of Planning Study with elements of Final Design for TAQ-TAQ Dam, Iraq.

The purpose of Environment Impact Assessment Study is environmental impacts analysing and proposing of mitigation measures and monitoring plan.

Scope of activities and project objectives are:

- Investigation and data collecting
- Scope of legal regulations and environmental framework important for EIA Study
- Description of the existing environment (biophysical and human environment)
- Project background and project description regarding the environment
- Environmental impact analysis (sources of impacts, prediction of biophysical impacts, human impacts and other economic and social impacts)
- Mitigation measures (measures that must be conducted due to impacts elimination and control)
- Monitoring planning (plan for continuous impact monitoring)
- Conclusions and recommendations of the next stage of the project
Description of Actual Services Provided by Consultant:

Environment Impact Assessment Study for TAQ-TAQ Dam covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data – existing environment
  - Biophysical environment – climate, topography, hydrology, water quality, wastewater discharges, solid wastes, geology, hydrology, seismology, pedology, vegetation and forest cover, limnology, wildlife, endangered species, international treasures
  - Human environment – landscapes, land use, population characteristics, economic structures, social and cultural structures
- Determination of mitigation and monitoring costs

Consultant's Name: ITSC Belgrade
<table>
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<th>Assignment Name:</th>
<th>Country:</th>
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<tbody>
<tr>
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<td>IRAQ</td>
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<td>Ministry of Water Resources, GD for Dams and Reservoirs</td>
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<tbody>
<tr>
<td>ITSC, Iraq, STUCKY, Swiss</td>
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<table>
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<tr>
<th>Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:</th>
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<tr>
<td>Dipl.-Ing. Vicko Letic – Project Director</td>
</tr>
<tr>
<td>Dipl.-Ing. Vlada Skoko – Project Manager</td>
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<tr>
<td>Dipl.-Ing. Miomir Vasiljevic – Environmental Expert</td>
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<table>
<thead>
<tr>
<th>Narrative Description of Project:</th>
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<tbody>
<tr>
<td>The Bekhme Dam Project is located on the Greater Zab River, a tributary of the Tigris River in the northern (Iraqi Kurdistan) part of Republic of Iraq. The purpose of the Bekhme reservoir is: irrigation, flood control and hydroelectric generating. Environment Impact Assessment Study is part of Bekhme Dam Project, Iraq. The purpose of Environment Impact Assessment Study is environmental impacts analysing and proposing of mitigation measures and monitoring plan. Scope of activities and project objectives are:</td>
</tr>
<tr>
<td>• Investigation and data collecting</td>
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<tr>
<td>• Scope of legal regulations and environmental framework important for EIA Study</td>
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<tr>
<td>• Description of the existing environment (biophysical and human environment)</td>
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<td>• Project background and project description regarding the environment</td>
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<tr>
<td>• Environmental impact analysis (sources of impacts, prediction of biophysical impacts, human impacts and other economic and social impacts)</td>
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<tr>
<td>• Mitigation measures (measures that must be conducted due to impacts elimination and control)</td>
</tr>
<tr>
<td>• Monitoring planning (plan for continuous impact monitoring)</td>
</tr>
<tr>
<td>• Conclusions and recommendations of the next stage of the project</td>
</tr>
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</table>
Description of Actual Services Provided by Consultant:
Environment Impact Assessment Study for Bekhme Dam covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data – existing environment
  - biophysical environment – climate, topography, hydrology, water quality, wastewater discharges, solid wastes, geology, hydrology, seismology, pedology, vegetation and forest cover, limnology, wildlife, endangered species, international treasures
  - human environment – landscapes, land use, population characteristics, economic structures, social and cultural structures
- Determination of mitigation and monitoring costs

Consultant's Name: ITSC Belgrade
## Firm's References
Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

| Assignment Name: ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR BASSARA DAM AND IRRIGATION PROJECT – Iraq | Country: IRAQ |
| Location within Country: IRAQ | Professional Staff Provided by ITSC 5 |
| Name of Client: Ministry of Water Resources, GD for Dams and Reservoirs | No. of Staff: 6 |
| Address: | No. of Staff Months: |
| Start Date (Month/Year): March 2005 | Completion Date (Month/Year): 2006 |
| Duration of Assignment: | Approx. Value of Services (in current US$): 140,000 Euro |
| Name of Associated Firm(s), if any: ITSC, Iraq, STUCKY, Swiss | No. of Months of Professional Staff Provided by Associated Firm(s): - |
| Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed: Dipl.-Ing. Vicko Letica – Project Director Dipl.-Ing. Aleksandra Popivoda – Project Manager Dipl.-Ing. Miomir Vasiljevic – Environmental Expert | |
| Narrative Description of Project: The Bassara Dam is located on the Tawooq Chai River, Iraq. The purpose of the Bassara reservoir is: irrigation, flood control and hydroelectric generating. Environment Impact Assessment Study is part of Irrigation Project for dam BASSARA, Iraq. The purpose of Environment Impact Assessment Study is environmental impacts analysing and proposing of mitigation measures and monitoring plan. Scope of activities and project objectives are: • Investigation and data collecting • Scope of legal regulations and environmental framework important for EIA Study • Description of the existing environment (biophysical and human environment) • Project background and project description regarding the environment • Environmental impact analysis (sources of impacts, prediction of biophysical impacts, human impacts and other economic and social impacts) • Mitigation measures (measures that must be conducted due to impacts elimination and control) • Monitoring planning (plan for continuous impact monitoring) | Conclusions and recommendations of the next stage of the project |
Description of Actual Services Provided by Consultant:

Environment Impact Assessment Study for for Bassara Dam covers the following services:

- Site Reconnaissance
- Investigation and evaluation of relevant data – existing environment
  - biophysical environment – climate, topography, hydrology, water quality, wastewater discharges, solid wastes, geology, hydrology, seismology, pedology, vegetation and forest cover, limnology, wildlife, endangered species, international treasures
  - human environment – landscapes, land use, population characteristics, economic structures, social and cultural structures
- Determination of mitigation and monitoring costs

Consultant's Name: ITSC Belgrade
## List of Selected Projects

<table>
<thead>
<tr>
<th>Item</th>
<th>Project Name and Description</th>
<th>Services</th>
<th>Client</th>
<th>Value USD</th>
<th>Start Date</th>
<th>Completion Date</th>
<th>Contact Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dokan-Sulaimany water treatment plant</td>
<td>Supply and installation of Raw water pump station, High service pump station. Each wash pump station intermediate pump station</td>
<td>Nokan Board of Implementation</td>
<td>11 Million</td>
<td>Jul-08</td>
<td>Mar-09</td>
<td>Mr. Faraidoon Kaban</td>
</tr>
<tr>
<td>3</td>
<td>Bakhmah Dam</td>
<td>Design &amp; Engineering</td>
<td>Ministry of Water Resources</td>
<td>1.4 Million</td>
<td>Sep-05</td>
<td>Jul-06</td>
<td>Eng. Raad Abduljalil Director General</td>
</tr>
<tr>
<td>4</td>
<td>Sarchinar 8 MW Power Station</td>
<td>Complete Design Supply and Installation</td>
<td>Ministry of Municipality/ KRG</td>
<td>1 million</td>
<td>Nov-07</td>
<td>March-07</td>
<td>Eng. Farhad Director of Sulaimany Municipality</td>
</tr>
<tr>
<td>5</td>
<td>Sahri Jwan 5 – Star Hotel</td>
<td>Supplying and installation of Electrical works</td>
<td>Sahri jwan Company</td>
<td>2.5 Million</td>
<td>Nov.-06</td>
<td>Nov.-08</td>
<td>Power Company Mr. Joseph</td>
</tr>
<tr>
<td>6</td>
<td>Tasluja 50MW Power Station</td>
<td>Mechanical Work</td>
<td>UIENC</td>
<td>1.4 Million</td>
<td>Jun-07</td>
<td>Jan-08</td>
<td>Mr. Kim Director of Korean UIENC Energy.</td>
</tr>
<tr>
<td>No.</td>
<td>Project Title</td>
<td>Description</td>
<td>Contractor/Municipality</td>
<td>Total Cost</td>
<td>Start Date</td>
<td>End Date</td>
<td>Contact Person</td>
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</tr>
<tr>
<td>8</td>
<td>Sulaimany University</td>
<td>Supply and Commissioning of 6X2MW Diesel Generators with synchronization and Automation Control</td>
<td>TEPE- FDC</td>
<td>1.6 Million</td>
<td>Jun-07</td>
<td>Dec-07</td>
<td>TEPE Headquarter/ Ankara- MS. ISRA</td>
</tr>
<tr>
<td>9</td>
<td>Haroot Pharmaceutical Factory</td>
<td>Supply and installation of all electrical works</td>
<td>Haroot Company</td>
<td>3 Million</td>
<td>Jun-09</td>
<td>Dec-09</td>
<td>Eng. Munjid Said</td>
</tr>
<tr>
<td>10</td>
<td>Diwanyia WWTP</td>
<td>Supply, Installation and Rehabilitation Works.</td>
<td>Bechtel International Systems Inc.</td>
<td>0.6 Million</td>
<td>Apr-04</td>
<td>Dec-04</td>
<td>Mr. Chris Riely</td>
</tr>
<tr>
<td>11</td>
<td>Service Contract for HVAC System</td>
<td>Supply, Installation,</td>
<td>KBR</td>
<td>0.25 Million</td>
<td>Jan-04</td>
<td>Jul-04</td>
<td>Contract Department</td>
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<tr>
<td>12</td>
<td>Kadhimiya Waste Water Pumping Stations</td>
<td>Design Supply, Installation and Rehabilitation Works</td>
<td>PARSONS</td>
<td>0.5 Million</td>
<td>Sep-04</td>
<td>Apr-05</td>
<td>Dr. John Maalouf</td>
</tr>
<tr>
<td>13</td>
<td>Alqadisiyah Water Pump Station</td>
<td>Engineering &amp; erection Work ( Tanks &amp;Pumps )</td>
<td>Crown Agents Consulting Inc.</td>
<td>0.43 Million</td>
<td>Dec-04</td>
<td>Aug-05</td>
<td>Mr. Kaith Masland</td>
</tr>
<tr>
<td>14</td>
<td>Mussayab Power Station</td>
<td>Engineering, Civil Works and Fuel Tank Installation</td>
<td>Southeast Texas</td>
<td>1.5 Million</td>
<td>Apr-04</td>
<td>Mar-05</td>
<td>Mr. Raad Nadum</td>
</tr>
<tr>
<td>15</td>
<td>Alsha’ab Olympic Stadium</td>
<td>Design of VIP Sections and New Utility Systems, Rehabilitation Works</td>
<td>Iraqi Olympic Committee</td>
<td>3.2 Million</td>
<td>Apr-04</td>
<td>Feb-05</td>
<td>Mr. Ahmed Hijiyah President of Committee</td>
</tr>
<tr>
<td>16</td>
<td>Al-Rafaie Water Treatment Plant</td>
<td>Design and Built of 2,000 m3/hr of Drinking Water.</td>
<td>Ministry of Public Works</td>
<td>9 Million</td>
<td>Nov-05</td>
<td>Mar-07</td>
<td>Eng. Ghazi Naji Director General of Water Authority</td>
</tr>
<tr>
<td>No.</td>
<td>Project Title</td>
<td>Description</td>
<td>Client</td>
<td>Cost</td>
<td>Start</td>
<td>End</td>
<td>Project Manager</td>
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<tr>
<td>18</td>
<td>Rehabilitation of Ministry of Culture Building</td>
<td>Turnkey Project.</td>
<td>Ministry of Culture</td>
<td>6.5 Million</td>
<td>Decemb er 2003</td>
<td>Dec-04</td>
<td>Dhafir Abdul Jabar Head of Engineering Department</td>
</tr>
<tr>
<td>19</td>
<td>Distribution Transformers</td>
<td>Supply and Install of 16 Distribution Transformers with Electrical Networks</td>
<td>Ministry of Electricity</td>
<td>1 Million</td>
<td>Jan. 2006</td>
<td>May-06</td>
<td>Eng. Akeel M. Musa</td>
</tr>
<tr>
<td>20</td>
<td>Al-Faluja Water Treatment Plant</td>
<td>Design and Built of 4,000 m3/hr of Drinking Water plant and Transmission piping.</td>
<td>Ministry of Public Works</td>
<td>29 Million</td>
<td>May-06</td>
<td>Mar-08</td>
<td>Eng. Ghazi Naji Director General of Water Authority (Contract Signing )</td>
</tr>
<tr>
<td>21</td>
<td>Oil Distribution Valves and Fittings for oil pipelines</td>
<td>Design and Supply</td>
<td>Oil Pipeline Company Ministry of Oil</td>
<td>1.7 Million</td>
<td>Oct-03</td>
<td>Jun-04</td>
<td>Mr. Zahir Al Mimar Commercial Director</td>
</tr>
<tr>
<td>22</td>
<td>Carbon Black Production Plant / Baiji</td>
<td>Design supply and Site Supervision</td>
<td>North Refineries / Baiji</td>
<td>1.4 Million</td>
<td>1997</td>
<td>2000</td>
<td>Dr. Ali Al Ubaidi Deputy Director General</td>
</tr>
<tr>
<td>23</td>
<td>Cathodic Copper Smelting Plant</td>
<td>Design, Supply and Construction Management</td>
<td>Al Shaheed General Company</td>
<td>6.5 Million</td>
<td>1999</td>
<td>2003</td>
<td>Mr. Basil Mahmood General Director</td>
</tr>
<tr>
<td></td>
<td>Project Description</td>
<td>Service Type</td>
<td>State Corportation/Company</td>
<td>Amount</td>
<td>Start</td>
<td>End</td>
<td>Manager/General Director</td>
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<tr>
<td>24</td>
<td>Nassiriya Unified Water Treatment Project and Five Pumping Stations.</td>
<td>Design &amp; Engineering</td>
<td>State Corporation for Water and Sewerage</td>
<td>0.75</td>
<td>Jun-01</td>
<td>Nov-02</td>
<td>Mr. Mahmod Ali Ahmed General Director</td>
</tr>
<tr>
<td>25</td>
<td>Rasafa WTP</td>
<td>Concept and Preliminary Design</td>
<td>State Company for Water Projects</td>
<td>0.8</td>
<td>Dec-01</td>
<td>Dec-02</td>
<td>Dr. Raad Mahmod Deputy Manager</td>
</tr>
<tr>
<td>26</td>
<td>North Rumaila Water Injection Project</td>
<td>Design and Engineering</td>
<td>SCOP Ministry of Oil</td>
<td>1.2</td>
<td>Sep-02</td>
<td>Jun-04</td>
<td>Mr. Kahtan Alanbaki General Director</td>
</tr>
<tr>
<td>27</td>
<td>Missan Injection Project Water Compact Units</td>
<td>Turnkey Project</td>
<td>South Oil Company</td>
<td>1.0</td>
<td>Nov-02</td>
<td>Feb-03</td>
<td>Mr. Rafid Dubbouni General Director</td>
</tr>
<tr>
<td>28</td>
<td>Rehabilitation of Kerkh W.W.T.P.</td>
<td>Rehabilitation and Maintenance</td>
<td>Bechtel International Systems Inc.</td>
<td>1.2</td>
<td>Oct-03</td>
<td>Feb-04</td>
<td>Mr. Jack Hume</td>
</tr>
<tr>
<td>29</td>
<td>Ventilation, Fire Fighting, Automation and Lighting System for Azmar Tunnel in Sulaimaniyah</td>
<td>Consultancy Work, assisting the client to efficiently implement the project applying the highest internationally recognized engineering standards and practice.</td>
<td>Directorate General of Roads, reconstruction and housing in Sulaimaniyah</td>
<td>216,000</td>
<td>Jan-2011</td>
<td>Dec-2011</td>
<td>Eng. Gulala Abdulrahman Mahmood</td>
</tr>
<tr>
<td>30</td>
<td>Master Plan for Sulaimaniyah International Airport</td>
<td>Data collection, traffic forecast, proposal, future master plan for the airport.</td>
<td>Sulaimaniyah International Airport</td>
<td>1 million</td>
<td>Mar-2011</td>
<td>Aug-2011</td>
<td>Eng. Tahir Abdullah</td>
</tr>
<tr>
<td>#</td>
<td>Project Name</td>
<td>Description</td>
<td>Contractor</td>
<td>Cost (Million)</td>
<td>Start Date</td>
<td>End Date</td>
<td>Project Manager</td>
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<td>31</td>
<td>Kirkuk Water Network/ Zone</td>
<td>Supply and Installation of 14 Km main water pipe line size 1400 mm, 1200mm with all distribution chambers and valves for Kirkuk City.</td>
<td>Kirkuk Governorate</td>
<td>20</td>
<td>August 2011</td>
<td>August 2012</td>
<td>Eng. Nihad Dawood</td>
</tr>
<tr>
<td>32</td>
<td>Dokan WTP Stage 2</td>
<td>Installation of Stage 2 Dokan WTP pumps, installation of 17 vertical Turbine pump each 1000 cubic meter per hour, 280 m head 1000 KW motor power.</td>
<td>I.T.T Goulds</td>
<td>350,000</td>
<td>December 2011</td>
<td>Feb 2012</td>
<td>Eng. Shlimon Zaya</td>
</tr>
<tr>
<td>33</td>
<td>Kirkuk Unified Water Treatment Plant</td>
<td>Complete detail design of 12000 cubic meters per hour water treatment plant, work includes hydraulic profile design, structure design, electro mechanical equipment and control.</td>
<td>Al-FAO State Company</td>
<td>250,000</td>
<td>August 2011</td>
<td>December 2012</td>
<td>Eng. Salih</td>
</tr>
<tr>
<td>34</td>
<td>Garraff Oil Field</td>
<td>Commissioning and startup of six compact substations in Garraff oil field.</td>
<td>TSI limited</td>
<td>300,000</td>
<td>July 2012</td>
<td>March 2013</td>
<td>Eng. Luay Toma</td>
</tr>
<tr>
<td>No.</td>
<td>Project Name</td>
<td>Description</td>
<td>Contractor</td>
<td>Contract Amount</td>
<td>Start Date</td>
<td>End Date</td>
<td>Project Manager</td>
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</tr>
<tr>
<td>35</td>
<td>Nasiriyah Power Station</td>
<td>Rehabilitation of water cooling system for Nassiriyah Thermal power station, contract with the Japanese company JGC, work includes replacement of (10) cooling tower fans, gear boxes, water treatment units, pumps, installation of new motor control center…</td>
<td>JGC</td>
<td>2 Million</td>
<td>June 2012</td>
<td>June 2013</td>
<td>Mr. Yuki Makino International Project Division</td>
</tr>
<tr>
<td>36</td>
<td>Zubair Oil Field Development Project</td>
<td>Electrical and Instrumentation Installation works</td>
<td>Weatherford</td>
<td>4 million</td>
<td>August 2014</td>
<td>March 2015</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Zubair Oil Field Development Project</td>
<td>Electrical and Instrumentation Installation works</td>
<td>Weatherford</td>
<td>4 million</td>
<td>January 2015</td>
<td>April 2015</td>
<td></td>
</tr>
</tbody>
</table>
Project Name: Zubair IPF E&I Work
Client: weatherford international
Completion Date: Jan 2015

Description of works:

**Installation of Electrical works:** Earthling & Lightning protection, 15,000m cable ladder installation, 180,000m of Cable lying/Pulling and Termination, Street Lighting in IPF and Plant Lighting.

**Instrumentation works:** Swagelok Tubing installation, field instruments, F&G installation, PAGA, Fiber optic & CCTV.
Project Name: Grand Millennium. 5 – Star Hotel
Client: Shari Jwan Company. Sulaimaniya
Completion Date: Feb 2014

Description of works:
Supply and installation of Electrical works; Selection, procurement and Installation of all Electrical equipment, M.V substation, main distribution boards, motor control center, bus riser, final distribution boards, and total of 70,000 meter of cables.
Project Name : Azmar Tunnel 2.5km Mountain Tunnel

Client : Roads and Bridges, ministry of housing & construction

Completion Date : April 2014

Description of works: Electrical System, ventilation, SCADA, Traffic Control (195,000 Meter Cable Pulling)

[CCTV, 32 PLC’s and 2 command Centers]
Project Name: University Of Sulaimaniyah New Campus
Client: University of Sulaimaniyah
Completion Date: 2014

Description of works:

Supply and installation of 6x2200KVA, F.G.Wilson generators, and the work include the installation and parallel operation to achieve the safe, KVAR/KW load sharing and start/stop load sequences. All control panels wiring and programming (power, data and network) where locally done as standby mode power station.
Project Name: Garraff Oil Field
Client: TSI Limited
Completion Date: 2013

Description of works:
Supply, Commissioning and startup of six compact substations in Garraff oil Field.
Cable pulling, termination, compact station.
**Project Name**: Nasiriya Power Station  
**Client**: JGC  
**Completion Date**: June 2013

**Description of works:**

Rehabilitation of all electromechanical system for Nasiriya Thermal power station, work includes replacement of (10) cooling tower fans, gear boxes, water treatment units, pumps, installation of new motor control center, starters, cables …
Project Name: karkh Water treatment

Client: Karkuk Governorate

Completion Date: 2013

Description of works: supply, installation and start-up of 5 substations 200,000 meter power cables
Project Name: Halfaya Oil Field CPF1

Completion Date: 2012

Description of works: supervision of E&I work, installation of cables.
**Project Name:** Dokan WTP Stage 2 Pumps  
**Client:** I.T.T Goulds  
**Completion Date:** February 2012  
**Description of works:**  
Installation of stage 2 Dokan WTP pumps, installation of 17 vertical turbine pump each 1000 cubic meter per hour, 280 m head 1000 KW motor power.
Project Name : Supply and Installation of Dokan-Sulaimaniya Water Treatment Plant 12000m³/hr W.T.P.
Client : Nokan Group
Completion Date : March 2009

Description of works:
Installation of 56 vertical multistage turbine 1.2 MW 6.6KV pumps, supply and installation of all pump stations valves and pipes. Supply 33Kv substations. 6.6Kv soft starter. 50,000 meter cabling.
**Project Name**: Haroot Pharmaceutical Factory  
**Client**: Haroot Company  
**Completion Date**: December 2009  
**Description of works:**  
Supply and Installation of all electrical works.
**Project Name**: Tasluja Power Station- -Sulaimaniya 53 MW Marine type Engine Generators

**Client**: UIENC/Korean Company

**Completion Date**: April 2008

**Description of works:**

Installation of 30 marine type Generators and supply & fabrication of Nine fuel Tanks with total capacity of 4100 Cubic meters, installation of pipes network, cable ways and cable termination.
**Project Name**: Sarchinar Water Project Power Station Design and Installation

**Client**: Kurdistan Regional Gov./ Water Directory

**Completion Date**: 2008

**Description of works:**
Design and Construction of 8MW Power Supply Station for Sarchinar Water Project; Works include complete design of civil work, Electrical system Synchronization, and PLC Control, Fuel Storage and Feeding, Supply of all Equipments and Material, Installation and Startup.
Project Name: Erbil Gas Turbine Power Station 450MW
Client: Ministry of Electricity
Completion Date: 2008
Description of works: Installation, Field Equipment, Cabling and Termination.
Project Name : Alrefai water treatment project
Client : Ministry of municipalities and public works
Completion Date : September 2008

Description of works:
Turn key job (Water treatment project capacity 2000m³/hr in Alrefai city).
Project Name: Samara Gas turbine Power Station 250MW
Client: Ministry of Electricity
Completion Date: 2007
Description of works: Installation, Field Equipment, Cabling and Termination.
**Project Name:** Taqtaq /Tasluja 132kV over Head Line

**Client:** Ministry of Electricity (Kurdistan regional Government)

**Completion Date:** 2007

**Description of works:** GPC Complete Turn Key Work 80km Line Length
**Project Name:** Sharqi Dijlah New Water Treatment Plant

**Client:** Parsons

**Completion Date:** August 2006

**Description of works:**
New Design and Built 12000 m3/hr in take, pump station 1200mm Transmission line, work include civil work, supply of equipment, installation, commissioning and start up.
Works also include the Rehabilitation of the old existing treatment plant, replacement of all vertical pumps, MCC's, instrumentation, Anti surge system, valves, controllers, switch gears, and M.V cables.
**Project Name:** Iraq distribution network

**Client:** Washington Group

**Completion Date:** 2006

**Description of works:** complete supply and commission 25 power transformers 33/11kV substations.
**Project Name:**  Rehabilitation of Wastewater Treatment Plan  
**Client:**  Bechtel International Systems Inc.  
**Completion Date:**  January 2005

**Description of Works:**
All Kerkh and Al Diwaniyah are two locations for Waste Water Treatment Plants which were rehabilitated by ITSC Ltd. The work included complete Rehabilitation of all Electro-Mechanical Equipments, Installation of new aerators, pumps, gearboxes, and transforms. Design and built of New Firefighting System, Design and Built of New Water Washing System, and Design and Built of all MCC’s and Electrical Distribution Boards.
Project Name: Wastewater Treatment Pumping Station
Client: Parsons
Completion Date: October 2005

Description of Works:
Repair of the sewerage pumping stations and associated impaired piping systems in Kadhmiya and Al Mansour districts of Baghdad. As well as, providing a new pump station at Zafaraniya, that will collect flow upstream and discharge it into a trunk sewer that will convey flows to the Rustamiyah Waste Water Treatment facility. Work included Design, Supply and Installation of Civil, Electromechanical and other services.
**Project Name**: Mussaieb Gas Turbines Power Plant  
**Client**: Ministry of Electricity  
**Completion Date**: October 2004  
**Description of Works:**
Civil and electroMechanical Works including 8300m³ concrete casting, design of utilities and piping network, tanks fabrication and installation of 4000m³ and 8000m³ capacity, installation of 10 gas turbine including utilities and polishing unit.
**Project Name:** cathodic copper production (alshaced factory)

**Client:** ministry of industry

**Completion Date:** 2002

**Description of works:** complete design and built project

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**Project Name:** Missan Oil Field Water injection (Turn Key Project)

**Client:** South Oil Company

**Completion Date:** 2002

**Description of works:**
**Project Name:** Carbon Black Factory - baiji

**Client:** ministry of oil baiji refinery

**Completion Date:** 2000

**Description of works:** complete supply and installation of all process and utility equipment including the power house and control room. 1300 workers, 25 crane, 35 welding machine utilized in the work during 1 year.
TAQ-TAQ DAM PROJECT

Contract title: PLANING REPORT & INVESTIGATION WORKS FOR TAQ-TAQ DAM

Location/River: Taq-Taq town / Lesser Zab River – IRAQ

Employer: Ministry of Water Resources IRAQ

Commencement date: 2004.

Completion date: 2006.

Contract price: 1,485,840 USD

Investments cost: 1,050,000,000 USD

Hydrology data
- Catchment area: 1850 km²
- Average discharge: 217 m³/s
- PMF flood: 8700 m³/s

Dam
- Type: Fill dam with central clay core and concrete gravity part
- Height: 90 m
- Crest length: 1900 m
- Embankment vol.: 14 x 10⁶ m³
- Concrete vol.: 0.54 x 10⁶ m³

Reservoir total storage: 2858 x 10⁶ m³

Spillway
- Type: Gated (radial gates) / 3 bays

HPP
- Installed capacity: 270 MW (3 units)
- Turbine type: Fransis
**Description of the Project:**

Location of designed Taq-Taq Dam is on river Lesser Zab, some 5 km upstream from Taq-Taq town in Iraq. Taq-Taq Dam presents the second step on Lesser Zab river, downstream from Dokan Dam and upstream from Dibbis Dam. The main purpose of $2900 \times 10^6$ m$^3$ large Taq-Taq reservoir is irrigation, regulation of water released from Dokan power station, flood control for downstream area and power generation.

Taq-Taq Dam, 90 m high, is designed as a fill dam with central clay core. It will regulate the river average annual discharge providing the water for irrigation (Kirkuk irrigation system and other downstream consumers). Three gated spillway bays with chute and ski jump bucket have sufficient capacity to convey the maximum designed flood with retention in the reservoir storage available. Designed power station has the installed capacity of 270 MW with discharge of 450 m$^3$/sec. Other appurtenant structures include diversion tunnels, bottom outlet, power intake and fuse plug.

**The Services Provided:**

Performance of Topographical & Geological Investigation Works and Preparation of Planning Report have been the most essential goals of the Project, including the following specific Consulting Services:

- Preparation of Investigation Works Program & Performance of Investigation Works;
- Determination of General Layout, optimization and engineering design of the Dam, Appurtenant Structures & HPP;
- Preparation of Hydrological, Topographical, Geological & Earthquake Hazard Study;
- Implementation of Cost Estimate with Construction Time Schedule & Economic with Financial analysis;
- Preparation of Environmental Impact Assessment Study.
Contract title: PRE-FEASIBILITY STUDY OF THE NEW IRRIGATION AREA – TAQ-TAQ DAM PROJECT

Location/River: Taq-Taq town / Lesser Zab River - IRAQ

Employer: Ministry of Water Resources IRAQ

Commencement date: 2006.

Completion date: 2006.

Contract price: 1,485,840 USD

Investments cost: 1,050,000.00 USD

Hydrology data
- Catchment area: 1850 km²
- Average discharge: 217 m³/s
- PMF flood: 8700 m³/s

Dam
- Type: Fill dam with central clay core and concrete gravity part
- Height: 90.0 m
- Crest length: 1900 m
- Embankment vol.: 14 x 10⁶ m³
- Concrete vol.: 0.54 x 10⁶ m³

Reservoir total storage: 2858 x 10⁶ m³

Spillway
- Type: Gated / 3 bays

HPP
- Installed capacity: 270 MW (3 units)
- Turbina type: Fransis

New irrigation area
- In reservoir area: 6300 ha
- Downstream of reservoir: 8965 ha
Description of the Project:

After construction of the designed Taq-Taq Dam, the area of 90 km² will be impounded, and total of 17000 inhabitants will be resettled. In order to mitigate negative effects induced by resettlements and to provide better life conditions possibility of resettlement to the region in the vicinity of the dam and reservoir as well as possibility and feasibility of irrigation of the new area which will be given as compensation was analyzed in the Pre-feasibility study.

The appropriate areas for irrigation in the vicinity of dam (8965 ha) and reservoir (6300 ha) were determined based on the available maps and satellite images. Water demands were estimated in accordance with climatic characteristics, demands of typical crops in the area etc. Irrigation systems and their technical solutions were elaborated and costs and benefits estimated. Economical analyses was preformed and feasibility confirmed.

Additional study was performed to evaluate impact of new irrigation areas on the performance of the Taq-Taq reservoir. Additional water balance simulations indicated that the impact is negligible.

The Services Provided:

- Preparation and analyses of available documents and maps;
- Determination of general layout, and preliminary design of the irrigation systems;
- Implementation of Cost Estimate and Benefit analyses;
- Evaluation of new irrigation systems on original Taq-Taq Dam Project.
BEKHME DAM PROJECT

Contract title: UPDATING OF PLANNING REPORT & TENDER DOCUMENTS FOR BEKHME DAM

Location/River: Bekhme gorge / Greater Zab River IRAQ

Employer: Ministry of Water Resources IRAQ

Commencement date: 2004.

Completion date: 2005.

Contract price: 1,200,000 USD

Investments cost: 3,100,000,000 USD

Hydrology data
- Catchment area: 16600 km²
- Average discharge: 377 m³/s
- PMF flood: 25850 m³/s

Dam
- Type: Rockfill dam with central clay core
- Height: 230 m
- Crest length: 600 m
- Embankment vol.: 34 x 10⁶ m³

Reservoir total storage: 17000 x 10⁶ m³

Spillway
- Type: Gated (radial gates) / 3 tunnels
- Capacity: 8865 m³/s

HPP
- Installed capacity: 1500 MW (6 units)
- Turbine type: Fransis
Description of the Project: Main purpose of Bekhme Dam Project is power generation, irrigation and flood control. System is composed of the following structures: Rockfill dam; Spillway, Bottom outlet & Diversion tunnels; Water conveyance facilities; Underground power house, Transformer & Switchyard hall.

The commencement of Bekhme Dam Project construction, based on original EPDC (Japan) project was in 1986. The works were suspended in 1990, due to Kuwait-Iraq war together with the following UN sanctions and it haven’t been continued, yet. The estimation of percentage of completed permanent works, made in 2004, was about 27%.

In the light of mentioned above the following Consulting Services within this Contract have been provided:

The Services Provided: Updating of original EPDC (Japan) Planning Report & Tender Documents have been the most essential goals of the project, including the following specific Consulting Services:

- Assistance to Ministry of Water Resources and State Commission for Dams and Reservoirs in continuing activities for Bekhme Dam Project;
- Review of status of executed works at Bekhme site;
- Engineering evaluation of the previous projects and works;
- Estimation of total cost of the remaining works;
- Updating of Hydrological, Topographical & Geological Report;
- Preparation of Environmental Impact Assessment Study;
- Updating of Contract Documents for Civil works & Equipment;
- Establishment of Tendering Procedure and rendering assistance to Client during Tendering Procedure.
Contract title: ECONOMIC AND FINANCIAL EVALUATION OF BEKHME DAM MULTIPURPOSE PROJECT

Location: Bekhme gorge / Greater Zab River – IRAQ

Employer: Ministry of Water Resources IRAQ

Commencement date: 2006.

Completion date: 2006.

Contract price: 150,000 USD

Investments cost (including irrigation): 4,900,000,000 USD

Hydrology data
- Catchment area: 16600 km²
- Average discharge: 377 m³/s
- PMF flood: 25850 m³/s

Dam
- Type: Rockfill dam with central clay core
- Height: 230 m
- Crest length: 600 m
- Embankment vol.: 34 x 10⁶ m³

Reservoir total storage: 17000 x 10⁶ m³

Spillway
- Type: Gated (radial gates) / 3 tunnels
- Capacity: 8865 m³/s

HPP
- Installed capacity: 1500 MW (6 units)
- Turbine type: Francis
Description of the Project: The Bekhme Dam design was finished and construction begun in 1986, but construction works were suspended in 1991 due to the war. The Updated Planning report and Tender Documentation for continuation of works on this dam were finished in 2006.

This economic and financial evaluation was done in course of assessment the project economic and financial viability today, and to provide and overview of possible issues in the financing of such a multipurpose project. This analysis integrates economical, financial, institutional, technical, sociological and environmental considerations.

In this project more than 500 million USD is already invested and the total remaining works amount 4,400 million USD. Performed analyses shows that this project is both economically and financially feasible.

The Services Provided:
- Identifying, evaluating and comparing economic costs and analysing sensitivities;
- Analyses of HPP production effects;
- Analyses of irrigation effects;
- Economical evaluation of project;
- Financial evaluation of project.
Contract title: PRE-FEASIBILITY STUDY OF THE ALTERNATIVES WITH REDUCING BEKHME DAM HEIGHTS

Location/River: Bekhme gorge / Greater Zab River IRAQ

Employer: Ministry of Water Resources IRAQ

Commencement date: 2006.

Completion date: 2007.

Contract price: 400,000 USD

Investments cost (including irrigation): 3,510,000,000 USD

Hydrology data
- Catchment area: 166000 km²
- Average discharge: 377 m³/s
- PMF flood: 25 850 m³/s

Dam-Alternative 1
- Type: RCC dam
- Height: 170 m
- Crest length: 471 m
- Concrete vol.: 2.6 x 10⁶ m³

Reservoir total storage: 8110 x 10⁶ m³

Spillway
- Type: Ungated / 5 bays

HPP
- Installed capacity: 840 MW (6 units)
- Turbine type: Fransis
Description of the Project: The commencement of Bekhme Dam Project construction, based on original EPDC (Japan) project started in 1986. The works were suspended in 1990. Since then, a lot of villages have been founded in the area envisaged for the impoundment, so resettlement of the villagers became a serious issue. Due to that reason, an analysis of alternatives with reduced dam heights was performed.

A pre-feasibility study of four alternative technical solutions was done. Two dam types – RCC and fill dam type – as well as two maximum impoundment levels (reduction from 599 m a.s.l. to 550 m a.s.l. and to 517 m a.s.l.) were analyzed. Proposed technical solutions incorporated more than 90 % of already executed constructions at the dam site. For each alternative, construction costs and resettlement costs were estimated as well as reduced effects of irrigation and power production. A thorough economical analysis was performed. Characteristic parameters B-C (Net Present Value), B/C, EIRR (Economic internal rate of return) and LRIC (Long Run Incremental Costs) were evaluated for alternatives and compared with parameters for original solution. An optimal alternative (RCC, 550 m a.s.l.) was recommended.

The Services Provided:

- Review of existed documents and data and their systematisation;
- Determination of general layout, optimization and engineering design of the Dam, Appurtenant Structures & HPP for each alternative;
- Engineering calculations;
- Estimation of total cost for each alternative;
- Analyses and evaluation of potential irrigation and power production effects for each alternative;
- Estimation of reduction of resettlement costs as well as preparation of list of impoundment villages for each alternative;
- Evaluation of characteristic economic parameters and recommendation of optimal alternative.
Contract title: PRELIMINARY & PLANNING REPORT WITH INVESTIGATION WORKS, FINAL DESIGN & TENDER DOCUMENTS FOR BASSARA DAM

Location/River: Bassara gorge / Tawooq Chai River IRAQ
Employer: Ministry of Water Resources IRAQ
Commencement date: 2005.
Completion date: 2007.
Contract price: 2,305,000. USD
Investment cost: 110,600,000. USD

Hydrology data
- Catchment area: 574 km²
- Average discharge: 8 m³/s
- PMF flood: 2870 m³/s

Dam
- Type: RCC & Fill dam with central diaphragm
- Height: 67.0 m
- Crest length: 284.7 m
- Concrete vol.: 0.26 x 10⁶ m³
- Embankment vol.: 0.26 x 10⁶ m³

Reservoir total storage: 54 x 10⁶ m³

Spillway
- Type: Gated (radial gates) / 3 bays

HPP
- Installed capacity: 4.8 MW (2 units)
- Turbine type: Fransis

Irrigation area: 2900 ha
ITSC Hydroengineering Ltd.  

Description of the Project: Location of designed Bassara Dam is on river Tawooq Chai, some 20 km far from Sulaimanyah town in Iraq. The main purpose of 54 millions m³ large Bassara reservoir is to enable regulation of Tawooq Chai for irrigation of 2900 ha of cultivated land. Beside this, construction of the dam will improve river low flows regime. The water head difference which will be formed with the dam will be used for electric power production, so the HPP of 4.8 MW is proposed. Bassara dam is designed as a combination of RCC Dam with Spillway & Fill Dam with central concrete diaphragm. Appurtenant structures includes diversion tunnel, water intake tower, bottom outlet with penstock & irrigation pipe and HPP.

Location of the Irrigation field is some 11 km downstream of the dam location. Water from the Bassara reservoir to the irrigation field is conveyed through a 1400 mm main pipe. For further water distribution a network of primary and secondary level pipes is designed. The total length of all pipes in the network including the main pipeline is approx. 90 km.

The Services Provided: Performance of Topographical & Geological Investigation Works and Preparation of Preliminary & Planning Report, Final Design & Tender Documents have been the most essential goals of the Project, including the following specific Consulting Services:

- Preparation on Investigation Works Program & Performance of Investigation Works;
- Preparation of Hydrological, Topographical & Geological Study at Preliminary & Planning Report stage;
- Implementation of Earthquake Hazard Study at Planning Report stage;
- Preparation of Environmental Impact Assessment Study at Preliminary & Planning Report stage;
- Implementation of Cost Estimate with Construction Time Schedule at Preliminary with Planning Report & Final Design stage;
- Preparation of Economic & Financial Analysis at Preliminary & Planning Report stage;
- Establishment of Tendering Procedure and Rendering Assistance to Client during Tendering Procedure.