



WORLDWIDE CONSULTANTS FOR 50 YEARS



PUBLIC SECTOR MODERNIZATION &  
PRIVATE SECTOR DEVELOPMENT

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The success of a development project, be it in the power, agricultural, transportation or any other sector, obviously depends on the adoption of sound technical choices and on the existence of an adequate economic and financial context. However, these elements may not be sufficient, unless the project is planned and executed within a proper framework of regulatory policy and an efficient institutional system.

This necessity applies specifically in the field of major infrastructures, that are characterised by a complex organisation and usually have a strong impact on the living standard of large segments of population. The adoption of a proper framework of regulatory policy and institutional system can be related to two basic elements:

- **Modernization of the public sector**, to enhance its capability and effectiveness.
- **Development of the private sector**, to create favourable conditions that stimulate the interest of investors in the privatisation process.

## The importance of Regulatory Policy and Institutional System

These two elements are strictly interconnected. On one side, the State, as representative of the people, needs appropriate tools to manage efficiently development projects and thus obtain the maximum benefits for the population. On the other side, the interest of private investors is heightened by the appreciation that they can count on clear-set rules and on a counterpart capable of fulfilling its commitments.

A further element to be considered is the **environmental management**: in fact, economic development and environmental sustainability must proceed together, wherefore a correct environmental management constitutes an indispensable complement of any infra-structural project.

The major international institutions, including the World Bank Group, the Agencies of the United Nations and the Regional Development Banks, are well aware of the importance of a proper framework for project development. Actually, in the last decade their involvement in projects of public sector modernization and infrastructures privatisation has been sharply increasing. This involvement can be expressed in the form of technical advice, dissemination of information, financial assistance and provision of guarantees.

In parallel with international institutions, independent consultants can provide a significant contribution in this field, by placing their know-how at disposal of either governments, public utilities or private investors. The essential requirements for carrying out the corresponding tasks consist of:

- Reputation for professionalism, integrity, independence and neutrality
- Previous experience in the sector and in the country
- Access to a network of potential investors
- Knowledge of the requirements of potential bidders as well as of government

**ELC Electroconsult** feels that it fully satisfies the above stated requirements and is ready to face the challenge of assisting governments and private investors, with the confidence of being able to provide high quality consulting services and to enhance the chances for a successful outcome of the development project.

ELC Electroconsult is internationally recognised as leading consultant in the field of energy, infrastructure, irrigation, urban development and environment, and is registered with all major international lending agencies, providing engineering and consulting services ranging from planning and feasibility studies to tender design; from construction design, procurement, and construction supervision to commissioning.

Founded in 1955, the firm has been initially operating mostly in the hydroelectric sector, exporting at international level the expertise acquired through tens of projects developed in Italy. Afterwards, the company extended its activities into other fields of energy, as well as into hydraulics and infrastructures, becoming one of the leading engineering firms in the world.

Following the evolution of the development policies supported by the international lending institutions and the new requests and needs of the new globalised world economy, the firm has recently established a *Public Sector Modernization and Private Sector Development Division*, to better deal with this challenge.

In the following pages, the main topics relevant to public sector modernization and private sector development, as well as to environmental management, are briefly described. In line with the intense involvement of the World Bank in this field, the description has been largely taken from publications of the World Bank Group, in particular “The State in a Changing World” and “Financing Private Infrastructures”.

At the end of each paragraph the projects of similar nature and scope with ELC Electroconsult participation, together with the services provided by the firm, are listed. It should be noticed that, as mentioned before, the scopes of public sector modernization and public sector development are usually strictly interconnected: therefore, some projects can encompass both aspects.



Over the last century the size and scope of State action in economic and social development has expanded sharply, especially in the industrial countries, where it has reached about 50% of the GDP. On the other side, with the spreading in the most recent years of globalised world economy, the State is seen more and more as a facilitator and a regulator rather than as a direct provider of economic growth.

This situation underlines the importance of optimising the institutional structure of the State, in order to maximise the use of the available state resources and thus achieve the highest benefits for the society.

# Public Sector Modernization



Basically, the objective of public sector modernization refers to the improvement of two key factors:

- **Capability**, that is the ability to undertake and promote collective actions (e.g. public health, basic infrastructures, law and order) in an efficient manner.
- **Effectiveness**, that is the use of such capability to meet actual society demand for these goods.

The achievement of a proper effectiveness requires a very different approach among the various countries, not only in relation with the stage of their development, but also with size, ethnic composition, culture and political system. Moreover, taxes, investment rules and economic policies must be more responsive to the parameters of a globalised world economy.

The following list indicates the actions required for matching first the role of the State to its capability and then for improving that capability, as an essential step to become an effective state. Finally, the most common barriers to reform implementation are pointed out and relevant measures needed to overcome them are described.

## **1 Focusing the role of the State according to its capability**

Public providers of infrastructures, public services and other goods are often unable to offer good performances; at the same time, new opportunities have been created for competitive, private providers in activities until recently confined to the public sector. To take advantage of these opportunities, governments are beginning to separate financing of infrastructures and services from its delivery and to unbundle the competitive segments of utility markets from the monopoly segments. In this context, it is necessary to prioritise and to be realistic on what governments set up to accomplish.

### *1a. Securing economic and social fundamentals*

- Establishing a foundation of law and property rights.
- Sustaining a favourable policy for promoting growth.
- Investing in people and infrastructures.
- Protecting vulnerable sectors of society.

### *1b. Adopting a suitable policy to promote market growth*

- Establishing well designed regulatory systems.
- Pursuing an industrial policy in line with the country economy.
- Carefully managing the privatisation process.

## **2 Strengthening the public institutions**

The capability of public institutions depends on the technical and administrative capacity of the state officials, as well as on the institutional mechanisms, that give politicians and civil servants the flexibility, rules and restraints enabling them to act in the collective interest.

*2a. Build the foundations of an effective public sector*

- Establish a strong capacity for formulating and coordinating policies.
- Create systems for an efficient and effective delivery.
- Enhance motivated and capable staff through merit-based recruitment and promotion and adequate compensation.

*2b. Foster people participation*

- Involve intermediate organizations in policy making councils.
- Seek participation of potential users in government programs planning.
- Decentralise power and resources from centre to periphery.

*2c. Facilitate international partnership*

- Liberalize trade and investment laws.
- Support basic research.
- Protect the global environment.
- Improve the effectiveness of foreign aid.

**3 Removing barriers to reform implementation**

The improvement of the State effectiveness often encounters barriers, which must be identified and overcome. These barriers can be reconducted to three main factors:

- 1 Distributional characteristics of the reform, in terms of likely winners and losers;
- 2 Political strength of key groups;
- 3 Design of the existing state institutions

State reforms most subject to barriers and obstacles deal with regulation, social services, finance, infrastructures and public works, since they involve changing well established institutional structures and may affect the living standard of large segments of population. For example, pension privatisation is due to meet the opposition of trade unions, pensioners associations and bureaucracies, while trade liberalisation would be opposed by holders of import quotas and protected industrialists.

To achieve a better chance of success, reforms implementation and support must proceed taking into account the following elements:

- *Tactical design and sequencing.* The constraints of the existing State capability must be recognised, resistance to change diluted and a constituency in favour of reforms built by adopting a mixed package that balances gains and losses.
- *Compensation of losers.* Groups adversely affected by the reform must be compensated through severance packages or even through equity incentives, such as a share of privatised enterprises, in order to ease opposition.
- *Building of consensus.* The adoption of social pacts, wherefore business, labour and agriculture interests negotiate with government leaders the terms of a contract, setting clearly defined responsibilities for each group, can smooth deep-seated differences and mutual suspicions and pave the way to a successful reform implementation.

International agencies on their side can contribute to sustain reforms and remove obstacles by providing:

- Technical advice on the structure of the reform;
- Cross-country experience on a wide range of issues;
- Financial assistance to endure the initial hard period of reform until benefits start to flow in;
- A mechanism for countries to make external commitments, rendering it more difficult to backtrack on reforms.



**ELC Electroconsult** has acquired a significant experience acting as advisor or consultant in numerous projects involving policy making and regulatory reform. The firm philosophy is always focused on helping to establish a consolidated policy, a regulatory and institutional framework and to build examples of best practice.

The professional commitment, the interest of beneficiary, the fulfilment of policy and institutional prerequisites, the respect of environment, the monitoring of actions and the strong and fruitful relation with the financing institutions are the main criteria to which ELC Electroconsult is conforming in the provision of its services.

Basically, the activities of ELC Electroconsult in this context can be referred to the following major fields:

- **Assistance in the Definition of a Regulatory Policy.** In many countries throughout the world ELC has assisted State utilities and institutions in the review of the existing system, assessment of financial performance, preparation of strategy notes for restructuring and reforming, aimed at the definition and adoption of suitable policies, from the legal, institutional and organisational viewpoints, to promote market growth and to enhance the capability and effectiveness of the State itself.
- **Strengthening of Public Institutions.** ELC has provided and is providing consulting services to numerous public institutions for the improvement of the technical and administrative capabilities of the State officials, through support in restructuring and reforming of the institutional system and organisation and implementation of training courses, workshops and seminars.
- **Identification and Removal of Barriers to Reforms Implementation.** ELC has acquired a wide experience in the identification of social, political and institutional barriers that may hinder the implementation of the reforms and in the definition of countermeasures based on the proper design and sequencing of these reforms and on the search for general consensus.

The following list summarises the projects relevant to public sector modernization with ELC Electroconsult participation.

**2003-2004, Reorganization of Electric System, Ivory Coast (in association with n/e/r/a and Orrick)**

*Review of the institutional framework and of its performances and recommendations for possible modifications in the medium and long term and for the introduction of an open electricity market.*

**2001-2002, Energy Technical Assistance, Kosovo**

*Elaboration of investment plans for the power sector, lignite, district heating, natural gas and petroleum and Identification of options to finance such plans. Moreover, a plan for the electricity tariff rates and organisation was issued, and a scenario of the future structure of the Energy Sector defined, in order to improve efficiency.*

**1998-1999, Power and Telecommunications Sectors Reform, Federal Democratic Republic of Ethiopia**

*Assistance to the Ethiopian policy-makers and technical staff to define reforms that can increase efficiency and attract private investments in the power and telecommunications sectors.*

**1994-1999, National Power Sector Rehabilitation Project, Angola**

*Management of rehabilitation projects in the electric power sector, including strengthening of legal, regulatory, operational and institutional framework of the sector, appraisal of various projects, preparation of Terms of Reference for engineering studies, scheduling and financial analysis of the projects.*

**1997, Assistance for the Establishment of the Electric and Gas National Authority, Italy**

*Evaluation of the level and cost structure of the national electric market, with comparison with the market of other European countries; methodology for tariffs determination; identification of priority actions for restructuring, management and expansion of the electric system.*

**1996 - 1997, Tariff Study for Azerbaijan Electric System, Azerbaijan**

*Analysis of present tariff structure and price level and of financial performance of Azerenerji, the country Power Utility, in order to define a new tariff structure and level based on Long Run Marginal Cost (LRMC) methodology.*

**1993 - 1994, Study for the Improvement of Efficiency in the Power and Heat Supply Sectors, Azerbaijan**

*Power system overview and diagnostics; review of the institutional and organisational aspects of the sector, including relevant environmental legislation and regulations; identification and prioritisation of power sector rehabilitation projects.*

**1994, Energy Advisory Group, Kyrgyzstan**

*Assistance to the Government of Kyrgyzstan in the development of a suitable global energy policy that could help the shift from a centrally planned economy to a market oriented one.*

**1994, Institutional Study and Power System Expansion, Peru**

*Institutional study for privatisation of generation, transmission and distribution facilities; analysis of existing energy sector structure and of technical and financial performance of the Power Utility and private enterprises; methodology of income statement and balance sheet elaboration; integrated system expansion plan study.*

**1989 - 1993, Economic Analysis for AEM (Milan Energy Utility), Italy**

*Cost allocation methodology, operating cost analysis, assets evaluation, power and energy supply costs for electricity and gas for the Milan Energy Utility.*

**1991 - 1992, Geothermal Steam Pricing Policy, Indonesia**

*Study to identify legal framework, fiscal regulation and contractual arrangements to enhance the development of geothermal energy in Indonesia. The study includes the analysis of alternative energy utilisation from financial and economic perspectives.*

The way privatisation is managed is very important to the end results. The key factors are transparency of the process, winning the acquiescence of the involved people, generating broad-based ownership and instituting the appropriate regulatory reform.

Private participation in infrastructures (PPI) has experienced in the last decade an extremely fast rate of increase, in terms of total volume of investment, number of interested countries and subsectors involved. As regards the latter aspect, traditional fields of intervention, essentially power and telecommunication services, are being complemented by new sectors, such as railroads, airports, harbours, water supply and sewerage.

The process of infrastructures privatisation is in general very complex and it can refer either to the construction of new assets or to the divestiture / long-term operating concession of existing assets. In any case, contrary to many other private investments, governments are deeply involved in this process, as regulators and suppliers. Accordingly, planning and execution of a PPI must take into consideration the interest of two parties and obtain a convergence of such interest:

# Private Sector Development

- Government expects that divested assets are properly compensated and that consumers benefit from the implementation of the PPI.
- Private sponsors and lenders expect a fair return for their investment, a predictable implementation of the government commitments and an acceptable level of risks.

The main aspects that affect the success of a PPI are briefly commented here after.

## **1 Project performance**

The construction, operation and financial performances of a PPI are important factors for assessing the validity of the project itself.

Construction performance refers to the cost and time for project implementation: on the average, PPI are associated with much lower cost and time overruns (as referred to foreseen budget and schedule), if compared with publicly funded projects.

The operating efficiency is expressed by an increased capacity of the supplied services, improvements in the efficiency that reflects in lower tariffs and reduced waiting period for repairs, wider customer choice.

The financial performance is expressed by the rate of return on equity investments and by the absence of arrears in the debt services.

The positive performance of PPI projects has favourable downstream effects, that show up by attracting more investors, preparing the ground for further reforms and providing experience to policymakers.

## **2 Financial closure**

Financial closure is the point at which the principal participants (sponsors, government, and investors) reach a formal agreement on the fundamental business structure of the project and the terms and conditions of the project financing plan. Closure is important, because it allows investment to proceed and encourages further policy changes.

Several issues may affect the achievement of a fast financial closure, namely;

- Lack of expertise in the financing techniques, infrastructure regulation and country risk.
- Availability and type of government support arrangements.
- Poor coordination between different parts of government, both at the central level and between local and central government.
- Large size of the project, affecting public consultation, amount of required financing and complexity of coordination.
- Assessment of the market, especially in the transport sector, where there is no track record of cash flows.
- Difficulty in the adoption of adequate lender security arrangements.

## **3 Policy framework**

Sustainable transactions require a policy framework that meets the interests of governments (acting on behalf of the public), sponsors and lenders. This refers to the following issues:

- *Ownership structure.* Different ownership structures can be adopted, according to the political situation and the economic efficiency. They can range from management contracts to full divestitures, passing through leasing, BOT (build, operate and transfer), BOO (build, own and operate) and BOOT (build, own, operate and transfer).
- *Transparency.* It includes clear procedures for awarding and operating concessions, predictable government commitments, adequate competitiveness provisions, although in the initial privatisation stage direct negotiations may be more appropriate.
- *Legal framework.* The existence of a clear legal framework, that establishes responsibilities of different agencies and rules on the requirements for open competitive bidding, setting adequate provisions for the security requirements of lenders, obviously eases participation of private investors.
- *Foreign participation.* To stimulate interest and competition among foreign financiers, some actions should be taken by the government, including foreign exchange convertibility, assets security, tariff subsidies and adjustment mechanisms, contract enforcement and dispute settlement, creditworthy counterparts.

Considering the complexity of the issues, the risks faced by investors and the potential conflicts of interest facing civil servants, it is important that independent advisers assist the government in the process of policy framework improvement.

#### 4 Financing structure

The financial structure of a PPI is defined by three parameters: debt versus equity; local versus foreign financing; financing source. As refers to the latter parameter, financing of a PPI can derive from different sources, mainly commercial banks, insurance companies, international agencies and bond issues. On the average, local financing accounts for about one third of the total.

The mobilisation of a commercial debt of adequate volume and maturity faces several problems:

- The cautious approach of lenders in consideration of the risk of the investment, especially in developing countries. Loan security packages are normally established, including mortgage on land or fixed assets, share retention agreement, assignment of insurance proceeds, financial covenants.
- Foreign loans are subject to additional risks, such as availability of foreign exchange.
- A relatively small number of commercial banks throughout the world have a strong tradition of financing in developing countries and they may have exposure limits to clients, sectors or countries.
- Commercial banks typically have a time limit for repayment of about 10 years, while PPI require in general long-term financing.

- Other potential sources of financing, such as pension funds and insurance companies, are often publicly owned monopolies or are by law asked to invest mostly in government securities, although financing from these sources has sharply increased in the latest years.

*Private equity funds* are being set up to invest specifically in infrastructure projects or to focus on a country or a region with an expectation of investing in PPI projects. The investment rate of these funds basically depends on the pace of government privatisation and reform, competition from other financiers and fund managers experience and connections.

Infrastructure companies are often among the largest firms in a country and their high profile and relatively stable cash flow make them attractive to local lenders and investors. Moreover, infrastructures privatisation offers opportunities to the local population to participate in the domestic stock market and serves as a stimulation for foreign investment.

## 5 Project risks

Allocation of risks to the parties best able to manage them is essential for a sound PPI. Sponsors and lenders may still accept a certain level of risk, but in this case they expect a higher reward for their investment, which means higher costs and tariffs. Risks are present in different phases and different aspects of the project.

- *Construction and completion risk.* It may arise in the initial phase of the project, due to the high cost of services, delays in completion, cost overruns, sell out of sponsors. This risk is mitigated by adopting turn-key type contracts with provisions for liquidated damages, taking out commercial insurances, building a contingency amount into the financing plan and defining share retention agreements to tie the original sponsors to the project.
- *Operation risk.* It derives from poor operating efficiency or from delays or failures caused by other parties. To mitigate this risk, tested technologies should be preferred, performance guarantees from equipment suppliers requested, operation agreements linking operating performance to compensation established.
- *Market risk.* In unregulated competitive markets projects may face size, price and payment risks, while payment risks are present in take-or-pay type contracts. Mitigation arrangements include independent market assessments, limitation of debts exposure, escrow accounts.
- *Non-commercial risks.* It concerns the stability and consistency of the government economic and political policies, that may reflect on payment, tariffs, permits, expropriation, convertibility and other issues. This risk can be mitigated through specific contractual provisions, partnership with local investors and involvement with official financing institutions.

The deep knowledge of risk mitigation and management techniques constitutes an important asset for the successful implementation of a PPI.

**ELC Electroconsult** has participated as advisor or consultant in numerous projects related to private sector development, acting on behalf of either government agencies / utilities or of private investors. Throughout the implementation of these projects, the philosophy of the company has been always directed towards an increase of private participation and enhancement of the capability in the financing and in the management of infrastructures, within competitive market structures and under the rules of transparent and efficient regulatory agencies.

Basically, the activities of ELC Electroconsult in this context can be referred to the following major fields:

- **Identification and Development of Infrastructure Projects.** This constitutes the historical core business of ELC, which achieved a worldwide experience in analysing the technical and financial viability of hundreds of projects.
- **Procurement and Contracting.** ELC worldwide and long lasting experience acquired in performing the procurement for many projects maintains its strategic importance also in the private sector development field.
- **BOT/BOO/BOOT and Concession Projects (as Advisor of Institutions and Utilities).** The ELC activities have been focused on: procurement process improvement, IPP or investor proposal evaluation and PPA or service contract negotiation.
- **BOO/BOOT and Concession Projects (as Advisor of Developers).** The ELC activity has been focused on: IPP participation to energy market (feasibility study); preparation of the proposals; support to developer during contract negotiation; Owner representative during project implementation.
- **Due Diligence.** ELC has prepared Due Diligence reports covering technical, commercial and financial aspects, relevant to either public utilities or specific projects (e.g. geothermal fields), as tools to stimulate and facilitate the privatisation process or transactions between private and public parties.

The following list summarises the main projects relevant to private sector development with ELC Electroconsult participation.

**2004, Study on Co-generation of Heat and Electricity, Serbia (in association with CESI)**

*Feasibility Study to identify viable investment projects of co-generation power plants (including technical, economic and environmental assessment and identification of market/legal impacts of ownership arrangements), with the final objective to stimulate private initiatives in this field.*

**2004, Outsourcing O&M services for CCGT Power Plants, Teheran Regional Utility, Iran.**

*Preparation of Tender Documents for outsourcing Operation and Maintenance services for Combined Cycle Power Plants. The assignment, the first of this kind in Iran, includes preparation of Bidding Guidelines, Insurance Policy Strategy, Disputes Settlement Procedures and Monitoring Procedures. Assistance to the Client during the first bidding process through identification of qualified contractors, bid evaluation and contract negotiation.*

**2003-2004, Post-Privatization Study, Ghana**

*Technical and Post-Implementation Audit requested by the lending institution (World Bank/IDA) for retroactive reimbursement of the Project cost to the Volta River Authority (VRA).*

**2003-2004, Restructuring CHP System, Russia (in association with Ramboll and CESI)**

*Formation of generating companies on the basis of Combined Heat and Power Plants (CHPs) in the process of Russian power sector restructuring of the electricity sector and implementation of wholesale electric power market arrangements. One of the most important parts of the process is related to restructuring of the generation sector aimed at creation of a sufficient number of competitive companies attractive for investors.*

**2002-2004, Power Sector Privatization Project, ESM, Macedonia (in association with Meinl Bank, Fieldstone, CESI, Ernst & Young and Harrison & Sass)**

*Preparation of regulatory framework, privatization law, concession contract, financing options, bid documents, bid evaluation and negotiation, technical, commercial and financial Due Diligence, in the context of the restructuring and privatization of ESM, Macedonian Utility.*

**2003, Sarulla Geothermal Field Due Diligence, Indonesia**

*Elaboration of the technical and economic Due Diligence report on behalf of PLN (Indonesia electric utility), relevant to the geothermal field of Sarulla in the island of Sumatera, in view of the purchase of the field assets belonging to Union Geothermal Indonesia (UGI).*

**2002-2003, Power Sector Privatization Project, EDL, Lebanon (in association with PARIBAS, Dewey Ballantine and n/e/r/a).**

*Technical Audit of EDL electric system, (generation, transmission, distribution and commercialisation). Preparation of regulatory framework, privatization law, concession contract, financing options, bid documents, bid evaluation. Project Manager.*

**2002-2003, Acquisition of Eurogen and the Re-powering of Assets Owned by Eurogen, Citigroup Corporate & Investment bank, Salomon Smith Barney & Citibank, UK**

*Collection and review of information to make an independent assessment of the technical state of the assets of Eurogen, opine on appropriateness and adequacy of assumptions in the financial model, review Technical Due Diligence report as produced by the Owners Engineer, produce an Independent Engineer Report for the benefit of the Lenders and respond to questions arising from underwriters and potential lenders during syndication of the financing of the Transaction.*

**2002-2003, Installation of Parih Sar CCPP, Iran**

*As sub-consultant of PB Power (UK), acting as Owner Engineer, provision of consulting services (review of technical specifications, assistance in negotiation) up to financial closing for the Parih Sar 900MW Combined Cycle Power Plant, to be constructed by a consortium of companies: Mapna (FRI), DSD (Germany), Edison (Italy).*

**2002, Karaha Geothermal Field Due Diligence, Indonesia**

*Elaboration of the technical and economic Due Diligence report on behalf of Pertamina (Indonesia oil corporation), relevant to the geothermal field of Karaha in the island of Java, in view of the definition of a legal claim between the Government of Indonesia and private investors.*

**2001-2002, Acquisition of SENELEC, Senegal (in association with Chadbourne & Parke LLP, Citibank and B&V)**

*Analysis of current technical, commercial and economic performance of the sector, identification of weaknesses, evaluation of potential improvements in the medium and long term.*

**2001, Post Acquisition Due Diligence of SONEL, Cameroon**

*Analysis of the current performance of the sector and its constituent entities, identifying current weaknesses and evaluating potential improvements, promoting rural electrification programs, both off and connected grid, eliminating over-lapping responsibilities and improving tariff setting arrangements.*

**1996 - 2004, CBK (Caliraya, Botocan, Kalayaan) Hydroelectric Development, the Philippines**

*BROT (Build, Rehabilitate, Operate & Transfer) Project. Proposal preparation, contract negotiation and Owner representative on behalf of IMPSA Asia Ltd. for the rehabilitation of two 150 MW pump/turbine-generator units and relevant 220 kV substation and installation of two more 150 MW pump/turbine-generator units and relevant 220 kV substation in Kalayaan, plus rehabilitation of two existing hydropower plants (Caliraya of 32 MW and Botocan of 20 MW)..*

**1999 - 2001, Power Sector Privatisation Project, Congo-Brazzaville**

*Assistance to the Government of Congo during the preparation of the institutional framework, standard documents (including Sector Policy Letter, Electricity Law, Concession Contract, Plan of Investments etc.), bids evaluation and contract negotiation in view of the privatisation of the Congo Power Utility.*

**2000 - 2003, Geothermal IPP Re-negotiation Advisor, Indonesia**

*Provision to PLN (Indonesia Power Utility) of a broad range of advisory, audit, research and inspection services associated with the implementation of the Independent Power Producer (IPP) restructuring and re-negotiation program.*

**1999, Private Development of a Thermal Power Plant, Moldova**

*Analysis of the energy market and of the institutional framework of Moldova, investigations of the potential investors and preparation of technical documentation, in view of the involvement of private developers in the construction and operation of a thermal power plant.*

**1998, Efficient Thermal Power Technologies in the CIS & CEE Countries**

*Identification and promotion of investment opportunities to introduce Efficient Thermal Power Technologies and concurrently reduce greenhouse gas emission in CEE (Central and Eastern European) and CIS (Commonwealth of Independent States).*

**1998, Power Sector Privatisation Project, Senegal**

*Preparation of regulatory framework, privatisation law, concession contract in the context of the restructuring and privatisation of SENELEC, Senegal Power Utility; execution of Technical Audit for the whole electric system (generation, transmission, distribution and commercialisation).*

**1995-1996, Al Nasserien Power Plant, Syria**

*Analysis and evaluation of contract and as-built documents, to assist a private client on a claim relevant to the delay that occurred in the installation of a thermal plant.*

**1994 - 1998, San Martín de los Andes (Neuquén), Argentina**

*Concession of municipal sewerage treatment system. Feasibility study, preparation of the proposal, contract negotiation; Owner representative and advisor for tendering of O&M contract on behalf of. Idreco Invest Ltd.*

**1993 - 1998, Ciudad di Usnaya, Ministerio de Obra Sanitaria, Argentina**

*Concession of three municipal water treatment and distribution systems. Feasibility study, preparation of the proposal, contract negotiation; Owner representative and advisor for tendering of O&M contract on behalf of Idreco Invest Ltd.*

**1995 - 1996, Technical Assistance for Private Geothermal and Combined Cycle Power Projects, Indonesia**

*Analysis of legal and regulatory framework; review of present procurement process and documents under the BOO (Build, Operate and Own) scheme for Combined Cycle and Geothermal Projects; evaluation of natural gas price available from marginal fields for power sector; participation in a working team for improving procurement process of Geothermal Projects.*

**1995, Extension of Miravalles Geothermal Power Plant, 20 MW, BOOT Project, Costa Rica**

*Financial and technical advisor to ICE (Costa Rica Power Utility) for an unsolicited IPP proposal for renewable-geothermal energy project: evaluation of resource availability, plant efficiency and operation conditions for the addition of 20 MW to Miravalles 160 MW geothermal power plant.*

**1994, Privatisation of Power Plants for Piombino and Taranto Steel Mills, Italy**

*Technical due diligence aimed to evaluate the technical operating conditions and reliability of 500 MW existing steam power plants and the soundness of the project of new 3 x 170 MW combined cycle units fed by steel mill off gas, on behalf of Mission Co., USA and Sondel, Italy.*

**1993 - 1994, Casecnan Phased Trans-basin Scheme, The Philippines**

*Feasibility study on behalf of NPC (Philippines Power Utility) aimed to identify the possibilities of implementing the Casecnan hydroelectric and irrigation project in separate stages, in order to facilitate financing. Economic comparison and financial analysis with alternative schemes, assessment of the possibility of implementing the project with private financing through BOOT schemes.*

**1992, Privatisation of the National Transport and Gas Distribution Network, Argentina**

*Home office activities and long term mission for the acquisition study, equipment and investment evaluation at feasibility level (estimated value 2400 million US\$).*

**1992, Edison Stock Market Quotation, Italy.**

*Estimate of the net worth of generation and transmission system of an electric utility with 21 hydraulic power plants (960 MW), 23 transformer substations (1850 MVA) and 2,050 km of transmission lines*

**1991 - 1992, Municipal Services Project, Milan, Italy**

*Oil and natural gas heating systems, air conditioned systems and water treatments for major municipal utilities. Bidding documents, bids evaluation, technical deviation discussion and contract negotiation (value 100 million US\$) under a BOOT scheme.*

**1987, Geothermal Steam Pricing Policy, The Philippines**

*NPC (Philippines Power Utility) advisor during contract negotiation for ESA (Energy Sales Agreement) with PNOG and PGI geothermal fields developers. Evaluation of steam price formula and contractual arrangement.*

The implementation of major infrastructures, such as thermal or hydroelectric power stations, transmission lines, roads and railroads, either under public or private management, involves an important environmental impact that must be dealt with effectively. In this context, it is more and more recognised by governments, multilateral agencies, NGO and public opinion that economic development has to be accompanied by environmental sustainability.



Meaningful regulatory framework and information about the environment has to be accompanied by innovative and flexible incentives, relying on persuasion, social pressure and market forces to improve environmental performance.

The main aspects requiring a close examination refer to:

- Minimisation of waste
- Avoidance of contamination
- Health and safety measures
- Eco-efficiency
- Social issues
- Good relations with local communities

## Environmental Management

Especially, the following actions are needed to address environmental matters:

- **Public disclosure** of environmental information about the proposed projects and **consultation** with local groups and interested parties during the preparation of the environmental assessment by means of public hearings and direct contacts. These actions are due to build support among local residents.
- Definition of **policies and guidelines** (relevant for example to liquid effluents, air emission, workers safety concern), based on standards of international institutions and national or local laws and regulations.

- Introduction into the loan agreements of **legal covenants** on environmental performance. Covenants may include: detailed schedule of information to be supplied in the environmental assessment; warranties binding the developer to adhere to internationally accepted environmental standards; environmental compliance certificate for the infrastructure under consideration.

Most recent projects carried out by ELC Electroconsult have an environmental component, inasmuch as environmental management is seen as an integral part of any development enterprise. The ELC activities in environmental assessment and in the preparation of management and monitoring plans refer to projects of different nature and scope, among which the following, relevant to the last 10 years, are mentioned here after.

## 1. Power Generation

*Azerbaijan* (1993-1995). National Technical Cooperation: master plan of the energy sector for the rehabilitation of thermal and hydroelectric power plants.

*Costa Rica* (1983-1994). Miravalles Geothermal Field: feasibility study and contract design of 2 x 55 MW and one 25 MW geothermoelectric power plants.

*Ecuador* (1986-1992). Coca-Codo Sinclair Hydroelectric Plant: feasibility study of 3 x 144 MW units.

*Ethiopia* (2003-2004). Gilgel Gibe II Hydroelectric Project: technical assistance to EEPSCO for the construction of a 400 MW hydroelectric plant on the Omo river.

*El Salvador* (1993-1997). Berlin Geothermal Field: feasibility study, contract design and assistance to bidding of one 55 MW geothermoelectric power plant.

*El Salvador* (1993-1994). Acajutla Thermal Power Plant: rehabilitation of two 30 MW units.

*Indonesia* (1996-1998). Ambon and Lombok Islands: feasibility study for the installation of small geothermal power plants.

*Indonesia* (1992-1995). Darajat Geothermal Field: detailed design and construction supervision for one 55 MW geothermoelectric power plant.

*Italy* (1991-1994). Brindisi, Fusina and Fiume Santo Thermal Power Plants: detailed design and technical assistance for the reduction of SO<sub>2</sub> and NO<sub>x</sub> emissions.

*Mongolia* (1992-1993). Egin Hydroelectric Plant: feasibility study for the construction of an RCC dam and the installation of 3 x 50 MW units.

*Philippines* (1990-1992). Agbulu Hydroelectric Project: feasibility study for the installation of 3 x 120 MW units.

*Slovenia* (1992-1994). Drava River Hydroelectric Project: study for the exploitation of the water resources for generation of hydroelectric energy.

## 2. Power Transmission and Distribution

*Albania* (1992-1993). Nation-wide Survey: study for the rehabilitation and enlargement of the power transmission and distribution system.

*El Salvador* (1992-1993). Nation-wide Survey: basic and feasibility study for the rehabilitation of the country transmission system.

*Ethiopia* (2004). Transmission Line Project: technical assistance to EEPSCO during the construction of a 400 kV transmission line connecting the new Gilgel Gibe II HPP with Addis Ababa.

*Indonesia* (1995-1997). South Sumatra Transmission System: detailed design and construction supervision for 122 km of transmission lines.

*Indonesia* (1997-1999). Greater South Sumatra Transmission Project: detailed design and construction supervision for 184 km of transmission lines.

*Vietnam* (1996-2001). Power Distribution Rehabilitation Project: detailed design and construction supervision for the transmission and distribution system of three cities.

## 3. Agricultural Development

*Brazil* (1992-1994). Angical Irrigation System: feasibility study for the implementation of a sprinkler irrigated area over 10,000 ha.

*Indonesia* (1991-1995). Integrated Irrigation Sector Project: feasibility study, contract design and construction supervision for the implementation of an irrigation system over 115,000 ha.

*Nepal* (1989-1992). Pancheswar Multipurpose Project: preliminary study for the construction of a dam for power generation and irrigation.

*Philippines* (1991-1994). Malitubog-Maridagao Irrigation Project: feasibility study, contract design and construction supervision for the implementation of an irrigation system over 13,000 ha.

*Vietnam* (1993-1994). Hoc Mon-North Bing Chang Irrigation Project: feasibility study and contract design for the irrigation of 12,700 ha.

## 4. Water Supply

*China* (1995-1996). Wanjiazai Water Transfer Project: preliminary study for the implementation of a water conveyance system.

*Italy* (2004). Menta Multipurpose Project: environmental study on the impact of the implementation of the water supply system.

*Italy* (1976-2001). Menta Multipurpose Project: feasibility study, contract design and construction supervision for the construction of a dam for water supply purpose.

*Kazakhstan* (1994-1995). Syr Darya River Flood Control: basic study and preliminary design for river training in view of irrigation.

*The Philippines* (1994-1995). Water Resources Project: basic study on the development of water resources for water supply and irrigation purpose.



*Senegal* (1991-1993). Cayor Canal: feasibility study and contract design for the rehabilitation of a 240 km long canal for water supply.

## RESUME OF RECENT EXPERIENCE OF ELC ELECTROCONSULT IN PUBLIC SECTOR MODERNIZATION AND PRIVATE SECTOR DEVELOPMENT

Project	Country	Public Sector Modernization			Private Sector Development							Environmental Management	Period	
		Regulat. Policy	Institut. Strength.	Barriers Removal	For Utilities			For Developers			Due Diligence			
					Procurem.	Proposal Evaluat.	Negotiat. Support	Proposal Preparat.	Negotiat. Support	Owner Engineer				
Power Sector Rehabilitation	Angola	◆	◆	◆	◆									1994-1999
Water Treatment & Distribution Privatization	Argentina							◆	◆	◆		◆		1993-1998
Tariff Study	Azerbaijan	◆		◆										1996-1997
Energy Efficiency Improvement	Azerbaijan	◆	◆									◆		1993-1994
Post-Acquisition Due Diligence	Cameroon	◆	◆	◆							◆			2001
Efficient Thermal Power Technologies	CIS & CEE Countries		◆		◆							◆		1998
Power Sector Privatization	Congo Brazzaville	◆			◆	◆	◆							1999-2001
Power & Telecomm. Sectors Reform	Ethiopia	◆	◆	◆										1998-1999
Post-Privatization Study	Ghana										◆			2003-2004
Sarulla Field Due Diligence	Indonesia										◆			2003
Karaha Field Due Diligence	Indonesia										◆			2002

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Project	Country	Public Sector Modernization			Private Sector Development							Environmental Management	Period
		Regulat. Policy	Institut. Strength.	Barriers Removal	For Utilities			For Developers			Due Diligence		
					Procurem.	Proposal Evaluat.	Negotiat. Support	Proposal Preparat.	Negotiat. Support	Owner Engineer			
Geothermal IPP Renegotiation Advisor	Indonesia					◆	◆						2000-2003
Technical Assistance for BOO Contracts	Indonesia	◆			◆	◆	◆						1995-1996
Outsourcing O&M Services for CCGT Power Plants	Iran				◆	◆	◆			◆			2004
Installation of Parih Sar CCPP	Iran				◆	◆				◆			2002-2003
Eurogen Technical Assistance	Italy							◆	◆	◆			2002-2003
Electricity & Gas Authority	Italy	◆	◆	◆									1997
Reorganization of Electric System	Ivory Coast	◆	◆	◆									2003-2004
Energy Technical Assistance	Kosovo	◆	◆	◆									2001-2002
Energy Advisory Group	Kyrgyzstan	◆		◆								◆	1994
Power Sector Privatization	Lebanon	◆		◆		◆	◆				◆		2002-2003
Power Sector Privatization	Macedonia		◆		◆	◆	◆				◆		2002-2004

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Project	Country	Public Sector Modernization			Private Sector Development							Period		
		Regulat. Policy	Institit. Strength.	Barriers Removal	For Utilities			For Developers			Due Diligence		Environmental Management	
					Procurem.	Proposal Evaluat.	Negotiat. Support	Proposal Preparat.	Negotiat. Support	Owner Engineer				
Thermal Power Development	Moldova									◆	◆			1999
Institutional Study	Peru	◆	◆	◆										1994
CBK Hydroelectric Development	Philippines								◆	◆	◆		◆	1998-2003
Restructuring CHP System	Russia	◆			◆	◆								2003-2004
Acquisition of SENELEC	Senegal		◆	◆	◆	◆	◆					◆		2001-2002
Power Sector Privatization	Senegal	◆		◆	◆	◆								1998
Study on Co-generation of Heat and Electricity	Serbia	◆		◆	◆	◆							◆	2004
Al Nasserien Power Plant	Syria									◆				1995-1996