

Privatization in Patagonia: The Selling of Argentina's Largest Hydroelectric Plant

H. Fred Smith, TransAlta Energy Corporation

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SYNOPSIS

This case describes the bidding and takeover of Argentina's Piedra del Aguila hydroelectric plant by a consortium of three utility companies from Canada, the United States, and Chile. The bid for the plant approached \$1 billion. The case was told from the point of view of one of the representatives of the Canadian contingent. It describes the challenges of this type of international project and magnitude. The political environment and unrest in Argentina also presented challenges to the completion of this project. A project requiring the resources of multinational companies tests the capabilities of project management. The fact that this project ended a success is a testament to the power and capability of project management.

LEARNING OBJECTIVES

Through the study of this case, students should gain a better understanding of:

- the management of international projects
- project risk management
- the use of teams in project management
- the importance of language and cultural differences
- the day-to-day challenges in the management of a project.

DISCUSSION QUESTIONS AND POSSIBLE ANSWERS

1. What was the primary objective of this project as described in the case?
 - a. The primary objective seems to be to determine how to put together the bid offer for the hydroelectric plant. Developing this bid offer included determining if they should be in the bidding process at all, selecting the partners to bid with, and developing the bid.
2. According to the author, the bidding and takeover process described in this case "had all the classic elements of a project": a temporary undertaking, staff from different organizations, uncertain outcome, and dissolution upon project termination. Are there other elements to a project?
 - a. In the *PMBOK Guide*, section 1.2, What Is A Project, a project is defined as "a temporary endeavor undertaken to create a unique product or service." Therefore, the definition given by the author is a complete description of a project based on the *PMBOK Guide*. It may be argued that

the definition does not consider goals, stakeholders, schedules, etc., but those are elements also shared with regular operations and not the key distinguished elements of a project.

3. List some of the risks to this project. How can they be handled?
 - a. The Paleocauce (the ancient river channel which creates a geological problem).
 - b. Taking over an existing project.
 - c. Needing to move a population to the dam.
 - d. The potential and existing political problems.

All of these can be dealt with using the guidelines in *PMBOK Guide*, Chapter 11, Project Risk Management, which describes how to go about identifying, quantifying, and developing responses and contingency plans for the management of risks.
4. From the case, it can be inferred that at the beginning of the project, many of the actions in the project were not adequately planned. Most of the activities seemed to be reactive instead of proactive and uncertainty was a constant, as shown through the terrorist attack on the transmission towers. Is this common for all projects?
 - a. The amount of planning in each project is not a constant. In this case, the initial activities were oriented to gather data and find out more about an interesting opportunity. There is not a rule as to how much planning each project requires. However, the planning stage is the best stage in a project to save future expenses.
5. Can uncertainty such as that caused by the multinational relationships described in this project be planned for? At what stage in the project can the project management identify and consider risks such as these?
 - a. It is very difficult to schedule for such risks or barriers which might arise in the life of a project, such as the terrorist attack on the transmission towers or the different cultures among team members. Two areas of project management knowledge are required in order to adequately deal with these challenges. *PMBOK Guide*, Chapter 9, Project Human Resource Management, and Chapter 11, Project Risk Management, provide a framework for project managers to effectively deal with these circumstances.

ADDITIONAL DISCUSSION POINTS:

Throughout the case the author points out the synergy gained when the technical and financial representatives of the three companies started acting together instead of acting as six individual groups. Teams are becoming more and more important in business activities. Teams also have disadvantages. The students should research the disadvantages of teams and discuss.

A good source on the disadvantages of teams is Cleland's *Strategic Management of Teams*, Chapter 13, The Negative Side Of Teams.

Privatization in Patagonia: The Selling of Argentina's Largest Hydroelectric Plant

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When the bids were opened in Buenos Aires at an international public tender on November 19, 1993, for the concession rights for Argentina's largest hydroelectric plant, a newly formed consortium of three utility companies from Canada, the United States, and Chile submitted the winning bid—a financial obligation approaching \$1 billion.

The sheer size of the bid alone was enough to daunt even a seasoned project manager. Dealing with four countries, three partners, and two languages in the short bidding cycle compounded the task. Moreover, the Piedra del Aguila (Stone of the Eagle) hydro plant itself came with some unique challenges.

Unfinished Construction

Construction was not complete, and the new concessionaire would have to take over the existing construction contracts. When the tender documents were issued in July 1993, only one of the four turbine generators was operating, and the other three were in various stages of fabrication and assembly in Argentina and Russia. Construction, which began in 1985, had been suspended in 1989 when funding had dried up. Construction had resumed in 1991, but the contractors' claims for schedule extensions and escalation had not been settled. Management of the construction effort and coordination of the some eighteen contractors on-site was being handled by Hidroeléctrica Norpatagónica S.A. (Hidronor), an Argentine government organization that was being rapidly dissolved with the progression of privatization.

Remote Site

The plant was located in a remote part of the country in the Patagonian desert near the Andes mountains. A large *Villa Temporaria* for 10,000 people had been constructed at the site to house the workers and their families, but it was being dismantled as construction progressed. No provisions had been made for housing the permanent plant workers once the temporary camp was removed. The nearest towns of any size were a three- to four-hour drive away, too far for daily commuting.

... And, It May Leak!

Finally, the dam had a couple of technical quirks. Cold water from the Andes mountains had filled the reservoir much more rapidly than expected. This caused thermal cracking in the concrete dam despite a number of preventive measures (1). Also, the reservoir was partially contained by one of the few "Paleocauces" in the world. The Paleocauce was an ancient river channel

Achieving Low Cost Electricity

The primary objective of the administrators of the wholesale electricity market is to ensure that electricity demand is met at the lowest possible cost, while also meeting principal service requirements.

In order to maximize the economic benefit of hydroelectric capacity, the WEM system deploys a series of models covering time horizons ranging from one day to three years.

Daily scheduling is carried out with a system-wide hydrothermal dispatch model that produces the most efficient scheduling of the hydroelectric energy available. All generators participate in the functioning of the WEM. They have opportunity to influence decisions regarding modifications to the models and to assure that the models have been implemented to serve the best interests of the country's electrical system

Selling the Electricity Concession

For privatization, Argentina's electricity sector was divided into three sub-sectors: generation, transmission, and distribution. Business units were formed to hold the operating concession for each facility or system, such as a generating plant or portion of a distribution system. Controlling interest in the respective business units was then sold in international public tenders. Transfer of the concession rights from the government-owned business unit to private investors was thus achieved.

The Piedra del Aguila Business Unit

Five business units were formed for the hydroelectric generation business of Hidronor, including one for the Piedra del Aguila hydro complex. The privatization of the Piedra del Aguila business unit was effected through the sale of shares representing 59 percent of the voting rights of the unit in an international public tender, the terms of which were stipulated in the "Pliego" (the tender documents). The purchaser of the 59 percent interest in the Piedra del Aguila business unit (the "concessionaire") has the right to appoint a majority of the board of directors of the unit, and otherwise direct and manage the business unit.

THE PIEDRA DEL AGUILA HYDRO PLANT

Located approximately 1,200 km southwest of Buenos Aires on the Limay River, the Piedra del Aguila hydroelectric plant is some 20 km from the village of the same name off National Highway 237. The plant is approximately equidistant (230 km) from the cities of Neuquen and San Carlos de Bariloche.

The Piedra del Aguila hydroelectric facility has a nominal capacity of 1,400 MW with an annual production in the order of 5.400 GWh.

Dam and Reservoir

A concrete gravity dam containing approximately 2.8 million cubic meters of concrete closes off the Limay River, creating a reservoir 100 kilometers long with a surface area of 292 square kilometers. The dam is 860 m long with an average height of 170 m. The reservoir is also contained on its left side by a natural sediment dam consisting of alluvial and basalt deposits on top of an ancient river bed (Paleocauce). An extensive system of grouting the Paleocauce

has been deployed to seal the buried river channel including a grout curtain. The spillway is located on the left side of the dam and is controlled by four radial gates. The intakes for each of the four turbines are controlled by vertical gates; the water flows to the turbines through pen stocks 9 m in diameter.

Electromechanical Equipment

The turbines are located in the power plant at the foot of the dam. The turbines are Francis type with a vertical axis and a steel spiral case. Each turbine has a nominal capacity of 356 MW.

Each generator has three single-phase transformers to increase the voltage from 15.75 kV to 500 kV (50 Hz). A 500 kV substation is located just outside the powerhouse at the foot of the dam. The substation utilizes SF-6 insulated bus bar and switch gear with a double bus, single circuit breaker arrangement.

The plant is completely automated and uses a Bailey distributed control system (DCS) which allows run-up of the unit and synchronizing from the DCS control panel.

Construction Progress

After construction resumed in 1991, considerable progress was achieved. By the time the Pliego was issued in July of 1993 for the privatization bids, the civil works had been substantially completed. Assembly of the first turbine generator on-site had been completed and was being started up. Completion of Unit No. 2 was scheduled for later in 1993.

Population of the *Villa Temporaria* had been reduced to 3,500, and the civil works contractor had begun dismantling the housing units.

THE BIDDING CONSORTIUM

Three utility companies comprised the Hidroneuquén S.A. consortium: Chilgener S.A. of Santiago, Chile; Duke Energy Corp. of Charlotte, North Carolina, United States; and TransAlta Energy Corporation of Calgary, Alberta, Canada. The companies had never really worked together before except in the preparation of one round of unsuccessful bids for three hydroelectric plants in Argentina that had closed in June 1993.

TransAlta Energy had no assets in South America. Duke Energy's parent company, Duke Power Corp., had only recently acquired interests in TRANSENER, the Argentine electrical transmission system, and in Central Guemes, a 245 MW thermal power plant. Chilgener had led a consortium that had recently acquired the sprawling 1,000 MW Central Puerto thermal plant in downtown Buenos Aires.

Three Companies—Six Teams

Each company had an executive/financial team, responsible for organizing and structuring the funding required to support the bid, providing revenue forecasts, and developing the economic model. The financial teams assumed the lead role, organized the legal aspects of the bid, and assumed executive responsibility for assessing the final risks and fixing the bid price.

Each company also had a technical contingent who was charged with evaluating the engineering, construction, operational, and environmental aspects of the bid. The technical teams prepared the cost estimates for completing

construction, providing the mandatory works stipulated in the Pliego, operating and maintaining the plant for the thirty-year life of the concession, and corporate management of the business unit. They also provided assessments of the risks associated with these activities.

¡Hola!—Four Cultures—Two Languages

Bid preparation under even the best of circumstances is usually hectic. Operating in four countries—Canada, the United States, Chile, and Argentina—with three equal partners and six teams complicates communications exponentially.

None of the people on the Duke and TransAlta teams spoke any Spanish—at least at the start of the bidding process. Outside the major hotels in Buenos Aires, few Argentines speak English; only a few of the Chileans were fluent in English. The Pliego and all the contract documents at the plant site were in Spanish.

Besides the language barriers, there were *cultural differences*, particularly among the technical teams. The Duke people were from the Carolinas—Southerners—who said “y’all,” and wore funny hats. The Southerners had difficulty understanding the Canadians and vice versa. The North Americans were driven by a sense of urgency that simply lacked contagion in South America. The Chileans took long lunches, ate dinner late, and spoke a language the North Americans did not understand. The Chileans and Argentines were outwardly polite to one another, masking old political animosities. The Argentineans seemed temperamentally indifferent to the vast economic and social changes sweeping their country.

Preparing the Bid

Bid preparation started in a panic. Traveling on vacation the last week in July, I received a call from my secretary. My boss wanted me to go to Argentina—something about “due diligence.” Due diligence? Is this for a bank? What kind of power plant?

“I’ll try to find out some more ... he’s in a meeting ... can you leave Saturday at noon? Can you call me from a pay phone in a few hours?”

Let’s see ... flying from Rhode Island to Calgary ... arrive Friday afternoon, need to pack, find some pesos (be nice to have a map and some information on the plant). Do I need a visa? Isn’t it winter down there?

“Andes Mountains ... there may be snow. You’ll need boots ... road’s not that good in winter. Richard thinks you may be able to buy pesos in the Miami airport ... but you will be arriving there pretty late, the exchange booth may be closed. Nobody here seems to know much ... trying to set up a meeting Friday afternoon”

Snow? How cold? Who else is going? People from Duke? How will I know them?

“You’re now flying on Sunday, depart at noon ... arrive Neuquén Monday night 9 P.M. Eight hour layover in Buenos Aires ... it’s the only connection. I checked—it is Spanish ... not Portuguese. I can fax you some Spanish phrases ... call me when you’re near a fax. It’s a hydro plant ... I think we’re going to bid on it ... like the others.”

“Oh yes, I almost forgot, Richard said he has a few pesos. He’ll give them to you—I don’t think he’s going back. There were bullet holes in the

tail of the plane. I'm serious! It was in the northern part, though, on that coal plant. You're going south. Richard says not to worry."

Journey to Patagonia

When the plane left Calgary on Sunday, the trio from TransAlta—a pressed-into-service consultant from Newfoundland, a young electrical/mechanical engineer, and I—was still reading the bits and pieces of an unbound partial copy of the Pliego we had been given in a hasty briefing Friday afternoon. It was a bit like "Mission Impossible." We were almost expecting the packets of information to self-destruct after we had read them. We checked our tickets—for return fare.

We were supposed to meet the Duke team members in Miami on Sunday but could not find them. We linked up in the Buenos Aires municipal airport Monday evening. Duke had brought a whole contingent—specialists, consultants, translators, interpreters, environmentalists, and managers. The weather was wonderful, clear and 15° C. The parkas, boots, and survival gear became very heavy.

After a sleepless night for all in Neuquén (thanks to overheated rooms and a dog that barked all night), we had an early meeting with Hidronor at its main office in Cipolletti.

Does Anyone Know What's Going On?

Duke had set up the meetings with Hidronor to review the available documents and to inspect the hydro plant. Chilgener had already met with Hidronor on its own. Although TransAlta participated in the meetings with Duke, the utility companies had not decided to form a bidding consortium yet. Indeed, Chilgener, Duke, and TransAlta could well have ended up being competitors.

The first meeting with Hidronor was chaotic and frustrating. We were a large group (15) who had only met one another the night before. We crowded into a tiny conference room. Everyone seemed to have a different agenda. The translators and interpreters were having difficulty with the technical terminology. There was a constant babble of English and Spanish, and Spanish that sounded like English, and English that sounded like Spanish. The three telephones in the conference room rang constantly, and people entered and left the room at will. The Pliego was incomplete, and we did not have enough information to ask intelligent questions. Whatever we asked for did not seem to be kept in the Cipolletti office—we were told to ask for it at the site.

The tender closing date was just three weeks away. As the Duke and TransAlta technical teams dug into the complexity of the bid, a consensus was quickly reached that this date would be nearly impossible to meet.

On to Piedra del Aguila

The terrain outside Neuquén on the highway to Piedra del Aguila rapidly turned desolate—scrub brush, sand, and an occasional dusty village with a petrol station and roadside restaurant.

Fortunately, the staff members at the site were more hospitable than the terrain. After some initial frustrations, information proved to be plentiful. There was concern, however, that much was verbal, or transmitted "unofficially." Would the other bidders have the same information? Could we

The teams took copies of everything that was available, took copious notes, and photographed every aspect of the dam and power plant.

The first turbine-generator unit had only operated for 800 hours at the time of the teams' visit—and was shut down for repairs. This did not bode well for the reliability of the plant. We discovered, however, that the shutdown had been planned—to allow some tie-ins at the 500 kV switching station—and the repairs were minor.

There was considerable discussion about the construction management personnel. What would happen to the Hidronor staff currently running the site? With privatization, Hidronor was being dissolved. Would the staff disappear? Could the new concessionaire hire the staff?

Hidronor was worried that the contractors on-site might try to take advantage of the change in ownership, which could significantly increase the risk to the bidders (and lower the price offered to the government for the plant). Hidronor initially said it would provide a list of personnel and salaries for us. They later said that the Hidronor professional staff might form a company and contract services back to Hidronor before the tender closing. The services contract would then be assigned to the successful bidder, like the construction contracts.

After some initial skepticism, the technical teams responded favorably to the latter suggestion. Ultimately, the Hidronor professionals formed two companies, and contracted their services to Hidronor as a joint venture (5).

Are We a Team?

By the time the technical teams drove back to Neuquén from the site, it had become official—Duke and TransAlta would work together, with Chilgener, as the Hidroneuquén S.A. consortium. There was also some welcome news from Hidronor. The tender closing date had been extended, the first of several extensions to be granted.

The teams returned to their respective home offices to prepare independent assessments of the plant.

Hammering Out a Consensus

After assessments had been prepared, the six teams met in Buenos Aires in mid-September to reach consensus. The technical groups and financial/executive groups met separately at first, then jointly.

The first technical consensus was reached when Chilgener and TransAlta agreed to use Duke's spreadsheet model to review the estimated costs. The remaining differences were not as easy to resolve. After several days, the teams had to agree to disagree on a few issues and compromise on many more. At the conclusion, though, a revised spreadsheet was produced that all three technical teams could accept and initial.

This revised spreadsheet became the basis for evaluating subsequent *Circulars* (changes to the *Pliego*) that were issued by Hidronor (6). It also seemed to provide an important structure to the bidding process, and helped the technical team members to start to work together.

Getting Lean—the Winner's Edge

An urgency about the bid seemed to develop around the first of November. The tender closing date had finally settled at November 19 and probably would not be extended; the Argentine government wanted to complete the

transaction before year's end. The pre-qualifications were in, and three bidders had qualified to submit financial bids. (There had been rumors that the Hidroneuquén consortium might be the only bidder.)

The three technical team leaders decided that another trip to the site was necessary. The second turbine generator had been started up, and the first unit had been reportedly running well since September. The reservoir level had increased throughout September and October, subjecting a crucial upper alluvium/basalt joint in the Paleocauce to additional pressure and further testing repairs to the concrete dam. Finally, TransAlta and Duke had visited the Mendoza shop of IMPSA, one of the key electromechanical contractors, in September. We wanted to see if the Unit No. 3 materials we saw being fabricated had actually been delivered to the site and installed.

Chilgener also decided to send a team to have another look at the contracts. There were discrepancies in the certificates and progress payments that had never been resolved satisfactorily, and we felt we were carrying too much contingency for claims and uncertainties.

The site visit proved crucial—and positive—for two reasons. First, as expected, visiting the site a second time was a confidence builder. Both turbine-generators were running well and progress was evident on the third unit. The Paleocauce was performing better than had been projected with the additional head. Leaks in the concrete dam had been repaired cheaply. The Tecnor-Red joint venture was in place to manage construction, and site personnel seemed more committed with this uncertainty resolved.

More importantly, the technical people started to work together as a team. We started coming up with low-cost solutions to problems rather than compromising on contingency estimates. The long drives to the site, and then to Bariloche to redo the spreadsheets, provided time to informally discuss some outstanding issues.

The revised numbers that were faxed to our financial advisers in New York reflected our new confidence.

Grabbing the Prize!

The week before submission of the bid was anticlimatic for the technical teams. Emphasis shifted to the financial and executive side, assembling the funding, and fine-tuning return-on-investment calculations.

The bids were opened publicly in Buenos Aires on Friday, November 19, and word quickly reached Charlotte, Santiago, and Calgary—the Hidroneuquén S.A. bid was the winner, and by a slim margin!

A meeting in Santiago was quickly called for team leaders and key players to review a previously prepared takeover plan. Nominated members of the takeover team were confirmed, and the plan was updated and expanded. Team members returned to their respective countries to assemble additional staff, and the entire takeover team met in Neuquén on Monday, December 6. The official takeover date was December 29, 1993.

Chaos Reigns Supreme

Despite having a fairly detailed plan, the first few days in Neuquén were chaotic. Events continually conspired to keep everyone off balance.

The plan had been to set up temporary offices in a hotel while investigating permanent space. Part of the team would work in Neuquén and part

would move to the site a few days later. An "advance" team had started looking for office space and had booked the hotel and transportation.

The newly nominated general manager of the newly registered operating company was the first to arrive in Neuquén, and he was unexpectedly met by a barrage of media people at the airport. The privatization was big news in the provinces of Neuquén and Río Negro, and the television and press all wanted the story. He spent the rest of the day giving interviews and setting up appointments.

The hotel did not have enough rooms to accommodate the entire takeover team, so part had to be berthed at another hotel on the outskirts of town. The vehicles picking people up at the airport did not have enough room for luggage, so more vehicles had to be found. The kick-off meeting the next morning had barely kicked off when the team leader announced that there was a group of insurance people going to the site right away, so part of the team had to leave as well.

After the kickoff meeting broke up, a telephone call came through—Hidronor was not happy about reading of Hidroneuquén's arrival in the local press. Did the new owners intend to meet with Hidronor? Another call. President Menem had not signed the decree authorizing the takeover yet. There were rumors he was on holiday and would not return until after the new year.

And so it went. Chaotic meetings, panic reactions. Each company had brought new members to Neuquén for the takeover, and they were unfamiliar with the plant, the complex deal, and the four months of intense work that had gone into the bid. A number of the North American personnel had never been to Argentina before and spoke no Spanish. Some of the Chileans spoke no English. The Argentine telephone system worked intermittently, making communication with the site difficult. More panic—there were really only ten days to set everything up because people were leaving for Christmas on December 16, and would not return until two days before takeover.

Terrorists Topple the Transmission Towers

Ten days of intense work—surprising progress—a week off for Christmas—and the team returned the evening of December 27. President Menem had still not signed the decree. The reception in Neuquén for 200 people had to be canceled. The reception at the site was still on for noon, but why was it at noon? The meters had to be read then, and they were spread all over the site. It would be at least one o'clock before anyone could attend. The reception was postponed, but the invitations had already been printed.

Then, the evening of December 28, the electricity went out in much of Argentina. Terrorists blew up two 500 kV transmission towers, taking out the power lines to Buenos Aires, the major load center.

The morning of the takeover, the Piedra del Aguila plant had been cut back from 700 MW to 250 MW and was spilling water. Output had been "0" the night before.

At twelve noon, the meters were read. The contracts and assets were transferred at the site, and the legal documents were executed in Buenos Aires. President Menem had appeared after all, and the decree had been duly signed.

The privatization of Argentina's largest hydroelectric plant, supplying 10 percent of the nation's power, was complete.

LESSONS LEARNED

The bid and takeover of the Piedra del Aguila hydroelectric plant had all the classic elements of a project. It was a temporary undertaking, staffed by personnel taken from different organizations, had a high uncertainty of outcome, and was dissolved once the project was complete.

The problems inherent in project management were exaggerated during the bid and takeover—by language barriers, cultural differences, technical communication difficulties, and great distances. These magnified the problems created by the very nature of project management and drove home some important principles.

There were many lessons learned during this project, and some old lessons were revisited. Some of the more significant ones are outlined below.

- *Team building exercises are synergistic and well worth the effort expended.* Significant breakthroughs for the technical staff members occurred when they worked together as a team. Chaos resulted when the teams broke down.
- *If two teams were better than six, one team would be better than two.* The financial/executive team should have been integrated with the technical team for a further breakthrough.
- *Partnering for foreign investment is essential.* Each of the three companies of Hidroneuquén S.A. brought unique experience and talent to the consortium in addition to investment capital.

... And Some Challenges Remaining

Besides the necessity of meeting the return-on-investment hurdle, and the risks posed to those returns by a government economy (and political system) in transition, the following issues may well define the ultimate success of the Piedra del Aguila venture.

- *Maintaining good relations with the host country;* this is manifest in a number of important ways. Many of the mandatory works involve community interaction—an archeological museum, maintaining area roads, and reforestation must be handled properly.
- *De-mobilizing the Villa Temporaria;* removing a town that has taken root over ten years may well be a greater challenge than completing the remaining turbine units.
- *Solving the housing dilemma;* once the *Villa Temporaria* is dismantled, the permanent plant staff members and their families must be housed. The solution has a long-term impact on plant economics and staff members' satisfaction with their workplace.
- *Maintaining a true partnership among the three partners;* the equal partnership will not be maintained if the partners do not, or are not, allowed to contribute equally. The partnership can easily lapse into a managed investment if management decisions and authority are unequally shared.

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5. Agreement No. 757 was executed on September 29, 1993, between Hidronor and TECNOR-RED INGENIERIA UTE for "Direction and Inspection of Electro-mechanical and Civil Works of Piedra del Aguila Hydroelectrical Development."

6. In total, fifty-six circulars were issued—the last four on November 16, three days before the tender closing. The volume of the circulars exceeded the original volume of the Pliego.

Study Questions

PRIVATIZATION IN PATAGONIA: THE SELLING OF ARGENTINA'S LARGEST HYDROELECTRIC PLANT

1. What was the primary objective of this project as described in the case?
2. According to the author, the bidding and takeover process described in this case "had all the classic elements of a project": a temporary undertaking, staff from different organizations, uncertain outcome, and dissolution upon project termination. Are there other elements to a project?
3. List some of the risks to this project. How can they be handled?
4. From the case it can be inferred that at the beginning of the project many of the actions in the project were not adequately planned. Most of the activities seemed to be reactive instead of proactive, and uncertainty was a constant, as shown through the terrorist attack on the transmission towers. Is this common for all projects?
5. Can uncertainty such as that caused by the multinational relationships described in this project be planned for? At what stage in the project can the project management identify and consider risks such as these?