

INVESTMENTS IN BUILDINGS IN MEXICO AND THE RULES OF THE GAME FOR PRESENTATION OF BUDGETS

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ABSTRACT

Summary

In Mexico as in any other country, the Government has the rules that make the processes of Tenders or Competitions transparent. In Mexico it is not different, there are three Levels of Government and therefore it depends on the type of resource that is used for the execution of the works. These have well-defined sources of resources, I am not saying that only Public Works are those that are executed in Mexico, we also have a private work stop there, the role for budgeting depends on who calls the execution of them.

In Mexico, so much is executed; Private, and Public work there is where the rules of the game are to which we will refer to this article.

KEYWORDS: *Investments, Tenders, Contracts, Unit Price, Lump Sum, Materials, Direct Costs, Indirect Costs, Labor, Machinery, Bonus, Utility*

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INTRODUCTION

Theoretical Framework

Background Established in the Law

In the United Mexican States we have a Political Constitution and it is mentioned in article 134 (Federation, 1917) A-1.

It says "Art. 134. The economic resources available to the Federation, the States, the Municipalities, the Federal District (Today City of Mexico) and the organs. Political-Administrative of their demarcations. Territories are administered with Efficiency, Effectiveness, Economy, Transparency, and Honesty to meet the objectives to which they are intended (Reformed by decree published in the Official Gazette of the Federation on May 7, 2008) ".

"The results of the exercise of said resources will be evaluated by the technical instances established, respectively, by the Federation, the States, and the CD of Mexico (formerly the Federal District) in order to encourage economic resources to be allocated in the respective budgets. Under the terms of the previous paragraph (Added by Decree published in the official newspaper of the Federation on May 7, 2008) "

"Acquisitions, leases and disposals of all types of Goods, presentation of services of any kind nature and the contracting of work that they carry out , will be awarded or will be carried out through Public Tenders through Public Call for free proposals to be presented in a sealed envelope, which will be open publicly in order to assure the state the best available conditions. to price, quality, financing, opportunity and other pertinent circumstances (Reformed by decree published in the Official Gazette of the Federation on December 28, 1982) "

The origin of the resources, as mentioned in the first paragraph are:

Federal when the source of resources is provided by the Federal Government.

State when the origin of the resources are from the States and the rules of the game of the states are applied.

Municipal when the origin is of the Municipalities and the rules of the State game are met.

If we pay attention to what Art 134 says, it only mentions that Public Works must be Tendered through a public call but only mentions it, but then it will be necessary to comply with the rules established by the LAW ON PUBLIC WORK AND SERVICES RELATED THERETO .

Whereby by decree: "The General Congress of the United Mexican States decrees:

LAW OF PUBLIC WORK AND SERVICES RELATED THERETO

"ART 1. The present Law is of public order and its purpose is to regulate the application of ART 134 of the Political Constitution of the United Mexican States in matters of contracting public works, as well as the services related to them that perform:"

- The administrative Units of the Presidency of the Republic
- Secretaries of State and Counseling Legal of the Federal Executive
- The Attorney General's Office of the Republic
- The decentralized organisms
- The companies with majority state participation and the trusts in which the trustor is the Federal Government or a parastatal unit, and
- The federal entities, the municipalities and the public entities of each one, with the total or partial charge to federal resources, according to the agreements that they celebrate with the Federal Executive.

" The works associated with infrastructure projects that require long-term investment and scheduled amortizations will be subject to the approval of the Chamber of Deputies according to their constitutional powers, the General Debt Law, the Federal Budget and Fiscal Responsibility Law, as well as the other applicable budgetary provisions. With regard to the principles that contracts must contain, the contracting and execution procedures, as well as the conditions for public dissemination, will be addressed in accordance with this Law and the Federal Law on Transparency and Access to Government Public Information. (Paragraph amended DOF28-05-2009) "

"Art 2.- For purposes of this Law, it shall be understood as

- **Secretariat:** The Treasury and Public Credit:

- **CompraNet:** The electronic system of public government information Obre s public works and related to them, integrating among other information, the annual programs in the field of the agencies services; the unique registry of contractors; the register of social witnesses; the registration of sanctioned contractors; the calls for bids and their modifications; the invitations to at least three people; the minutes of the meetings of clarifications, of the act of presentation and opening of proposals and of failure; the testimonies of social witnesses; the data of the contracts and the modifying agreements; direct awards; the resolutions of the nonconformity instance that caused the state, and the corresponding notifications and notices. This system will be free consultation and will constitute a means by which contracting procedures will be developed. "
- Dependencies
- Entities
- **Treaties:** Conventions by public international law
- **Contractor:** The person who contracts public works or services related to them.
- **Bidder:** The person who participates in any public bidding procedure, or who is invited to at least three people;
- **Public Works Associated with Infrastructure Projects:** Works that have the purpose of construction, expansion of communications services, transport, hydraulics, environment, tourism, education, health, and energy;
- **Executive Project:** The set of plans and documents that make up the architectural and engineering projects of a work, the catalog of concepts, as well as the descriptions and sufficient information for this can be carried out;
- **Architectural Project:** The one that defines the form, style, distribution and functional design of a work. It will be expressed through plans, models, perspectives, artistic drawings among others ;
- **Engineering Project:** The one that includes the construction plans, calculation and descriptive memories, general and applicable particular specifications, as well as plants, elevations, sections, and detail, which will allow carrying out a civil, electrical, mechanical or any other specialty work, Y

"Art 26.- The dependencies and entities may carry out public works and related services in one of the following two ways:

- By Contract, or
- By direct Administration.

In the second title, the Law talks about the Contracting Procedures

"Article 27 The agencies and entities d is will select from among the procedures which are indicated below, who according to the nature of the contract ensures the State the best available conditions in terms of price, quality, financing, opportunity and other circumstances relevant:

- Public tender;
- Invitation to at least three people, or
- Direct award.

"Public works contracts and services related to them will be awarded, as a general rule, through the public tenders, through public announcement, so that positive proposals can be freely presented in a sealed envelope, which will be publicly opened."

"In the contracting procedures, the same requirements and conditions must be established for all participants, and agencies and entities must provide all interested parties with equal access to information related to said procedures, in order to avoid favoring any participant."

"The public tender begins with the publication of the call and, in the case of the invitation to at least three people, with the delivery of the first invitation, both procedures conclude with the issuance of the decision and the signing of the contract or, where appropriate, with the cancellation of the respective procedure. "

Title three of the contracts Of the Contracting

"Art 45. The dependencies and Entities must incorporate in the calls for tenders, the contracting modalities that tend to guarantee the State the best conditions in the execution of the works, adjusting to the payment conditions indicated in this article.

The Payment Conditions in the Contracts May be Agreed According to the Following:

- On the basis of UNIT PRICES, in which case the amount of the remuneration or total payment that must be covered will be made by a unit of the concept of finished work;
- A PRICE INCREASED, in which case the amount of the remuneration or fixed total payment that must be covered by the contractor will be for the works totally finished and executed within the established period.
- The proposals submitted by the contractors for the execution of these contracts, both in their technical and economic aspects, should be broken down into at least five main activities;
- Mixed, when they contain part of the works on the basis of Unitary Prices and another, at a Price, and
- Scheduled amortization, in which case the total payment agreed in the contract for public works related to infrastructure projects will be made according to the approved budget for each project. "

Development

The foregoing gives us the argument to explain how budgets are made to know how much are the works to be executed?

The most common in Mexico is to analyze each work concept per unit of measurement and establish the Unit Price.

Table 1

				MATERIALS
		DIRECT COST		WORKFORCE
				MACHINERY AND / OR EQUIPMENT AND / OR TOOL
				CENTRAL OFFICE
PRICE		INDIRECT COSTS		
UNITARY				FIELD OFFICE
		G ASTOS FOR FINANCING		
		UTILITY		
		ADDITIONAL CHARGES		

Because it is commonly chosen to make a budget for Unitary Prices, because the methodology in the Regulation of the Law emphasizes the Analysis of Unit Prices. A-2 and the executive project is not fully defined at 100%. Can be flexible to change is why the analysis of unit prices which the price is fixed p or executed concept and can vary the volumes of work performed is used.

The Unitary Price analyzes that Are

Let's start by defining what the unit price is.- It is at the minimum unit that a concept of work can be reduced, and what is a workable concept?

A working concept is an activity or series of activities that are executed chronologically in a work, example excavation is only the activity of extracting the natural material and that by a constructive process we have to move a foundation shoe to a certain depth and then we have to get to that depth to meet the specification of the project but the process only includes the activity of extracting the material by manual or mechanical means, another concept of work in Mexico would be dalas or castles in which are a series of activities which they are made to be able to finish that concept of work, reinforced steel reinforcement, steel enabled, concrete casting and casting according to the specification but also in the concept is also included the unzipping to leave the finished element, and all this is included in the unit price

The unit price is the amount of the total remuneration or payment that must be paid to the contractor per unit of concept completed and executed according to the project, construction specifications, and quality standards. They are expressed in national currency. (Official Gazette of the Federation, 2010)

That includes a Unit Price is Direct Costs, Indirect costs of central office and field offices, Financial Costs, Utility, and Additional Charges.

Direct costs are what s Materials needed enough needed to build each concept work.

To know what materials are required in the work, the executive project is known, the catalogs of concepts and concepts are read, a preliminary list of materials necessary for the particular work is made in order to acquire or produce the materials we do an investigation of market at least 3 suppliers of the same material with quality by specification in the different categories depending on the size of the work: and can be retail, wholesale and wholesale to select who is buying

each material by price, the lowest, or because it gives us service to take it to the site, or because it gives us credit and help with part of the financing.

Another important aspect to take into account in the additional material to that of the specified quality is the performance of the same per unit of finished concept.

Labor, the necessary categories to be able to transform those materials into the finished product that is that concept of work, example; a block by itself is not a wall I require a certain amount of block per square meter that seated with a mortar does not peel off or collapse to be able to conclude with the concept of wall.

What are the aspects to consider very important in the workforce;

We must consider that we should give them benefits and obligations is by law is not optional, that is, salary that receives liquid is not what it costs us the worker is paid but the employer costs more, is attached Factor analysis to the real salary, which is the ratio of the days actually paid in an annual period, from January to December, divided by the days actually worked during the same period.

Another aspect to consider is the performance of the different categories of the workforce, to make the program based on the performance of similar works or statistics through observation and literature on the subject. average yields by zones in Mexico, or the statistics of the company; also by type of work and based on experience in similar works previously built.

Table 2

REAL SALARY FACTOR.					
1.)	PAID DAYS			365.25	
	a) .- Aguinaldo			fifteen	
	b) .- Holiday bonus	6	0.25	1.5	

			SUM	381.75	
2.)	DAYS NOT WORKED				
	a) .- Sundays			52	
	b) .- Holidays by Law			7	
	c) .- Custom			1	
	d) .- Holidays			6	
	e) .- Diseases not prof.			2	
	f) .- Rain			2	

			SUM	70	
3.)	EFFECTIVE DAYS:	365.25	- 70	295.25	
	FACTOR BENEFITS:				
	PAID DAYS / D.EFFECTS	381.75	/ 295.25	1.2930	
				MINIMUM	GREATER
1.)	OFFICIAL BASE SALARY			1	1
2.)	FACTOR BENEFITS			1.29297206	1.29297206

Table 2: Contd.,

				-----	-----
3.)	INTEGRATED SALARY			1.29297206	1.29297206
4.)	IMSS				
	a) MINIMUM WAGE	0.27	1.29297206	0.34910246	-----
	b) MAJOR SALARY OF THE MIN	0.2214875	1.29297206	-----	0.28637715
	c) NURSERY 1%	0.01	1.29297206	0.01292972	0.01292972
	d) SAR 2%	0.02	1.29297206	0.02585944	0.02585944
5.)	NOMINAS 2%	0.02	1.29297206	0.02585944	0.02585944
7.)	INFONAVIT 5%	0.05	1.29297206	0.0646486	0.0646486
	SUMAS WITH INFONAVIT			1.77137172	1.70864641

Table 3

DAILY ROYAL SALARIES					
Do not	CATEGORY	SALT. DAILY B	F.SAL. REAL	VIATICOS	REAL SALT
1.-	PAWN	\$ 231.70	1.708646412	280.00	675.89
2.-	BUILDER	\$ 333.35	1.708646412	280.00	849.58
3.-	CARPENTER	\$ 333.35	1.708646412	280.00	849.58
4.-	FIERRERO	\$ 333.35	1.708646412	280.00	849.58
5.-	BLACKSMITH	\$ 333.35	1.708646412	280.00	849.58
6.-	ASSISTANT	\$ 266.67	1.708646412	280.00	735.64
7.-	ELECTRICAL TECHNICIAN	\$ 333.35	1.708646412	280.00	849.58
8.-	PAINTER	\$ 333.35	1.708646412	280.00	849.58
9.-	PLUMBER	\$ 333.35	1.708646412	280.00	849.58
10.-	CHOFER TRUCK	\$ 333.35	1.708646412	280.00	849.58
	MALLERO	\$ 333.35	1.708646412	280.00	849.58

Machinery and/or Equipment and/or Tool is the one that helps us in the constructive procedures to which we can make the execution of the work faster and of quality this is in Mexico still the construction is very artisan, it is not like in Europe, in Germany for example, there are robots that do the work of an official Mason, in Mexico we still have labor that only in some processes we use machinery or equipment, example the mixers to make the mixtures for mortars and concrete, of course, we are talking about building, since it is not the same in the road construction there the processes are all with heavy machinery but the operators are still human.

The difference between machinery, equipment, and tool is that for machinery and equipment they consume something, either electricity or diesel or gasoline and the tool is manual and consumes nothing only used by workers to help them with their daily tasks in construction example the shovel to extract material or the hammer to demolish.

Indirect Costs are the technical and or administrative expenses necessary to make possible the execution of the works and include among others the expenses of administration, organization, technical direction, surveillance, supervision, construction of general facilities necessary to realize work concepts, transport of machinery or construction equipment, contingencies, employee benefits executives (Official Journal of the Federation, 2010) are divided into two: Indirect Office Central are the corporate offices of construction companies but that's where they develop all the projects of the planning of the execution of work, programming of the same and controls everything related to taking care that the processes are appropriate and monitor that the budgeted is compared with the expenditures per week until it ends and that

the expenditures must be less than the budget to take care of the Utility and eager But this has a cost as a percentage of the direct cost.

The indirect field office is : necessary costs since in place where the work is built must have at least a small office to have at least the blueprints of the project to be executed where the Resident Engineers or Superintendents are attentive to the cost processes Time and Quality of the execution of the works throughout the construction time horizon. That also goes in a percentage of the direct cost and this percentage is greater than the indirect one of the central office.

The indirect ones are shown as a percentage of the direct cost of each work concept. Said percentage will be calculated by adding the amounts of the general expenses that are applicable and dividing this sum by the total direct cost of the works in question.

Financial Cost Art 214 (Official Gazette of the Federation, 2010) It is represented by a percentage of the sum of the direct and indirect costs and will correspond to the expenses derived from the investment of the own or contracted resources that the contractor makes to comply with the program of execution of scheduled works and valued by periods.

For the Analysis, Calculation and Integration of Financial Costs, the Following Should Be Taken into Account:

- That the candelarization of expenditures is in accordance with the program of execution of the works and the term indicated by the contractor
- That the percentage of the financing cost is obtained from the difference that results between the income and expenses, affected by the interest rate proposed by the contractor, divided by the direct cost plus the indirect costs (Diario Oficial de la Federación, 2010)
- That the following income is taken into account:

The advances granted to the contractor during the execution of the contract, and the amount of the estimates to be presented, considering the formulation, approval and payment periods, deducting the amortization of the advances granted, and

- That is integrated by the following expenditures

Expenses that involve direct and indirect costs

Advances for the purchase of machinery and equipment and permanent installation instruments.

Any expense required according to the execution program.

CHARGE FOR UTILITY

The utility charge is the profit received by the contractor for the execution of the work concept, will be set by the contractor and will be represented by a percentage of the sum of the direct, indirect and financing costs.

To calculate the profit, it is necessary to take into account the income tax and the participation of the workers in the profits of the company in charge of the contractor.

ADDITIONAL CHARGES

They are the expenditures that the contractor must make, since they are agreed as additional obligations that are applied after the utility of the unit price because they derive from a tax or right that is caused by the execution of the works and that are not part of the direct, indirect, and financing costs, nor the utility charge.

Table 4

INTERMUNICIPAL SYSTEM OF DRINKING AND SEWAGE WATER TECHNICAL MANAGEMENT				
	DEPARTMENT OF SPECIAL PROGRAMS			
	TENDER No 433060002-003-08			
	START DATE 26 MAY 2008			
	DATE OF COMPLETION SEPTEMBER 22, 2008			
	PERIOD OF EXECUTION OF WORK 120 DAYS			
	ANALYSIS OF UNITARY PRICES			
	PU00010			43306002-003-08
				amesaco 03 M3
3	CONCEPT: Excavation with mechanical means of strains in the open in any material			
	except rock, at any depth measured compact, the concept includes: placement of the material			
	on one side of the stock, afine floor and slopes.			
	CONCEPT	CANT	OR	COST
CLA	MATERIALS			AMOUNT

			SUBTOTAL	0.000
	WORKFORCE			
	PAWN	0.05000	JOR	208,185
	INTERMEDIATE CONTROL	0.10000	%	10.41

			SUBTOTAL	11,450
	TOOL AND EQUIPMENT			
	MINOR TOOL	0.03000	%	11.45
	RETROEXCAVATOR C / HAMMER	0.03500	VJE	333.21

			SUBTOTAL	12,000
	DIRECT COSTS =	DIRECT COST		23,450
	INDIRECT% CI X (CD)	IND		15.85%
	COST FOR FINANCING% CFX (CD + CI)	END		1.50%
	CORGO FOR UTILITY% CUX (CD + CI + CF)	UTILITY		7.50%
	ADDITIONAL CHARGES CA	EXPENSIVE		2.00%

		UNIT PRICE		30,228

Example of Unit Price Analysis



Figure 1

CONCLUSIONS

Following the rules for budget, construction means that all entrepreneurs who decide to participate in a public investment (work) must know perfectly as to analyze the work, which must take care, in addition, that gives the certainty that there are equal circumstances for everybody.

Clear rules to move forward

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