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TURN KEY PROJECTS TAILORING A TURN KEY PROJECT TO MEET THE CLIENT'S OBJECTIVES¹

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SUMMARY

This presentation will be dealing with the various benefits for any client to contract with a single entity to develop and build his project. It will specifically focus on time and cost savings arising out of such organizations and will highlight them in terms of project overall profitability.

RESUME

Le but de cette présentation est de passer en revue les différents bénéfices que tout propriétaire peut espérer recevoir en contractant avec une entité unique pour diriger et réaliser son projet. Mais avant d'entrer dans la description de différents aspects concrets, il nous est apparu utile de nous remémorer quels sont les paramètres les plus influents sur la profitabilité du projet.



The aims of this presentation are to review the various benefits that the Owner could expect when dealing with a single entity to develop, to manage and to build his project.

Before the description of various practical aspects, it appears useful to remind us what are the most influential parameters on a project profitability.

The following graphs illustrate the sensitivity of investment profitability in term of "Economical Rate of Return".

Two different kinds of project are analysed:

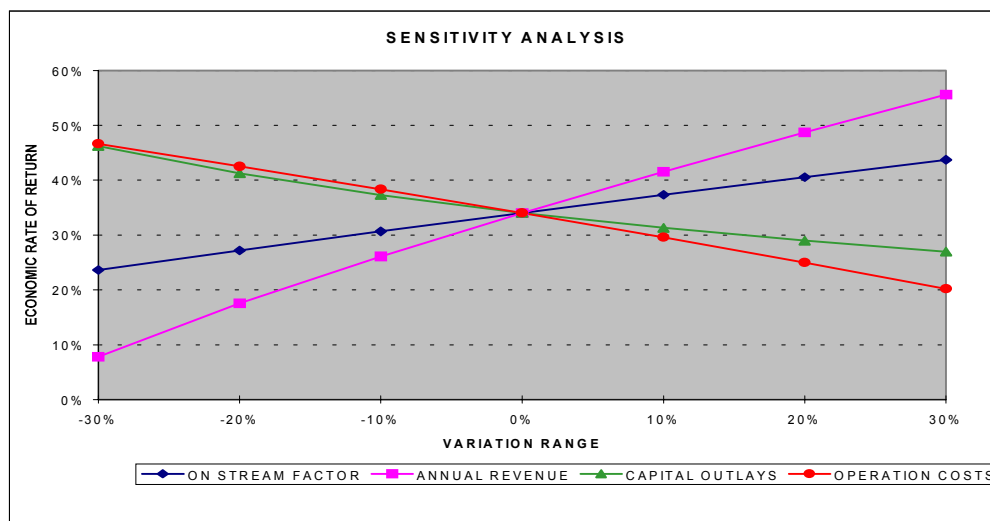
- a. a partial plant modernisation (construction of a new synthesis section)

UREA MODERNIZATION PROJECT

Table 1

SUMMARY OF SENSITIVITY ANALYSIS

RANGE OF VARIATION	-30%	-20%	-10%	0%	10%	20%	30%
ON STREAM FACTOR	24%	27%	31%	34%	37%	41%	44%
ANNUAL REVENUE	8%	18%	26%	34%	42%	49%	56%
CAPITAL OUTLAYS	46%	41%	37%	34%	31%	29%	27%
OPERATION COSTS	47%	43%	38%	34%	30%	25%	20%



¹ Projets clés en main - Adéquation entre une réalisation clés en main et les objectifs d'un client

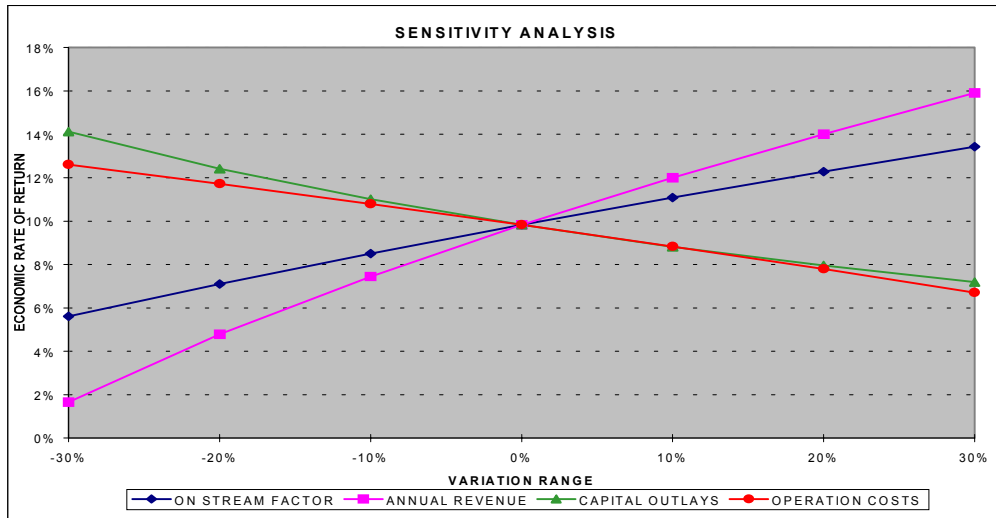
b. a realisation of a fertilizer complex (grassroot)

FERTILIZER COMPLEX

Table 2

SUMMARY OF SENSITIVITY ANALYSIS

RANGE OF VARIATION	-30%	-20%	-10%	0%	10%	20%	30%
ON STREAM FACTOR	6%	7%	9%	10%	11%	12%	13%
ANNUAL REVENUE	2%	5%	7%	10%	12%	14%	16%
CAPITAL OUTLAYS	14%	12%	11%	10%	9%	8%	7%
OPERATION COSTS	13%	12%	11%	10%	9%	8%	7%



On those two graphs, one will immediately identify that, by far, the most influential parameter on the project profitability is the annual revenue from the sale of the final product and, undoubtedly, this annual revenue is the real challenge of any entrepreneur.

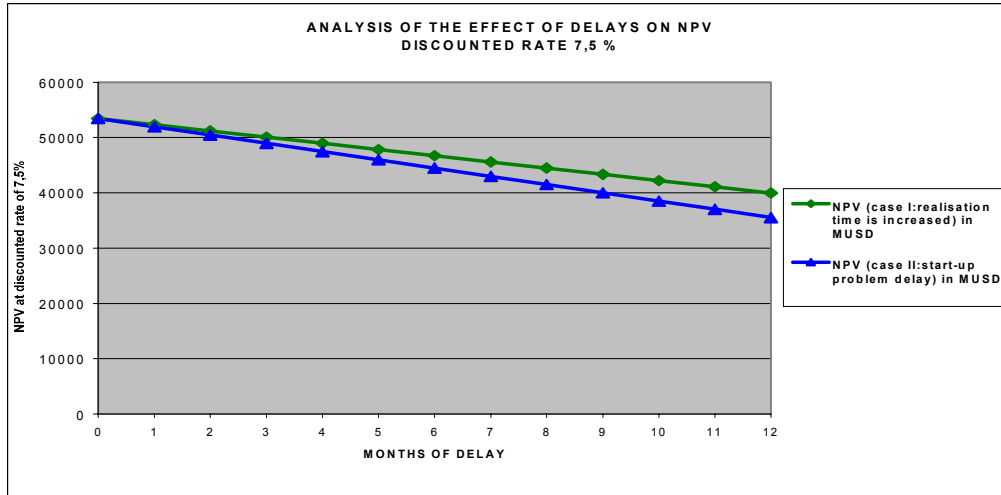
Then three other parameters come with almost a similar sensitivity:

- on-stream factor: if the plant you are considering is not producing all around the year at full capacity then your expectation in term of revenue will rapidly decrease.
- operating cost: it is clear that an absolute mastering of the price of the raw material and manpower is of a major importance. This is also the second real challenge of the entrepreneur to choose the location of his investment in order that those operating costs are competitive.
- investment cost: this important parameter is surprisingly not the most sensitive, but its influence is of the same order of sensitivity as the two previous parameters.

Let us also illustrate the damaging effect that delays in project realisation can have on the profitability of projects.

Table 3

Months of delays	0	1	2	3	4	5	6	7	8	9	10	11	12
NPV (case I:realisation time is increased) in MUSD	53440	52318	51196	50074	48953	47831	46709	45587	44465	43343	42221	41099	39977
RR (case I:realisation time is increased)	25.0%	24.5%	24.1%	23.6%	23.2%	22.7%	22.2%	21.8%	21.3%	20.9%	20.4%	20.0%	19.5%
NPV (case II:start-up problem delay) in MUSD	53440	51947	50453	48960	47466	45973	44479	42985	41492	39998	38505	37011	35517
RR (case II:start-up problem delay)	25.0%	24.3%	23.5%	22.8%	22.1%	21.4%	20.7%	20.1%	19.4%	18.8%	18.2%	17.6%	17.0%



As you can see on the graph, a delay in investment of about one year is decreasing the profitability in term of Net Present Value (NPV) of the project by about 25% to 35%. It means:

- o either that the revenue that an investor is expecting from the project above a non risky investment with an interest rate of 7.5% (state bonds, etc.) is decreasing much more rapidly than the occurred delay on the project.
- o or that, if the project is built thanks to a financing at 7.5% interest rate, the profit that the Entrepreneur is expecting from the investment is decreasing much more rapidly than the occurred delay on the project.

How can all those parameters be closely and efficiently better mastered when Client is dealing with a single entity?

By single entity we mean:

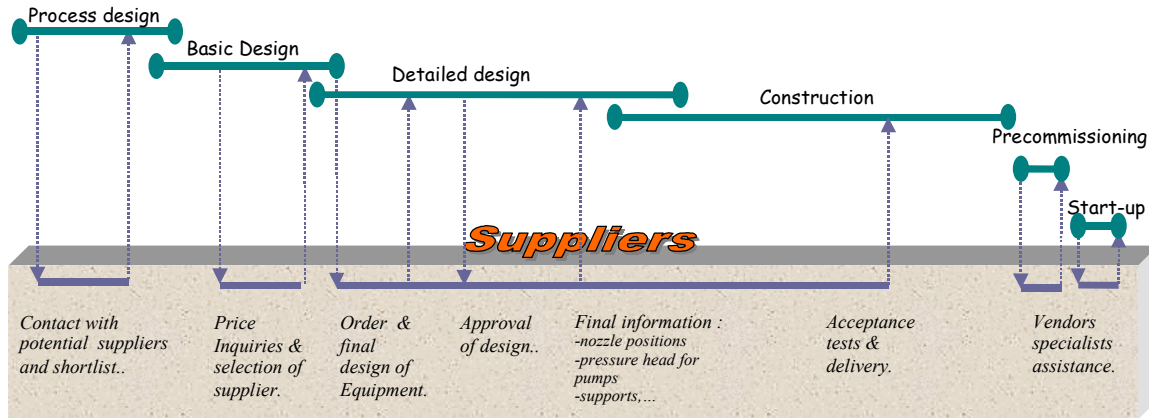
- either: a complete client's team working on a task force basis and, eventually, integrating working capacity from outside the company, this team having full autonomy and capacity to rapidly take decisions. The team has accepted the budget responsibility and is reporting regularly to the company management.
- or: a company outside the Owner's company that will execute the project according to a "turn key" contract defining the quality, the price and the time schedule of the project.

A. MASTERING OF THE REALISATION SCHEDULE

When you analyse the logic of the development of a project you come to the conclusion that many activities are closely integrated and therefore, to be successful, the information must be efficiently exchanged several times between the various participants on the project. The speed of information exchange becomes more and more critical together with the shortness of the realisation schedule allocated to projects.

1. Order of a critical equipment

By example: let us consider one sequence involving a critical equipment item.



As shown on this illustration, all along the successful delivery of the critical equipment items, many contacts are needed between the different team people.

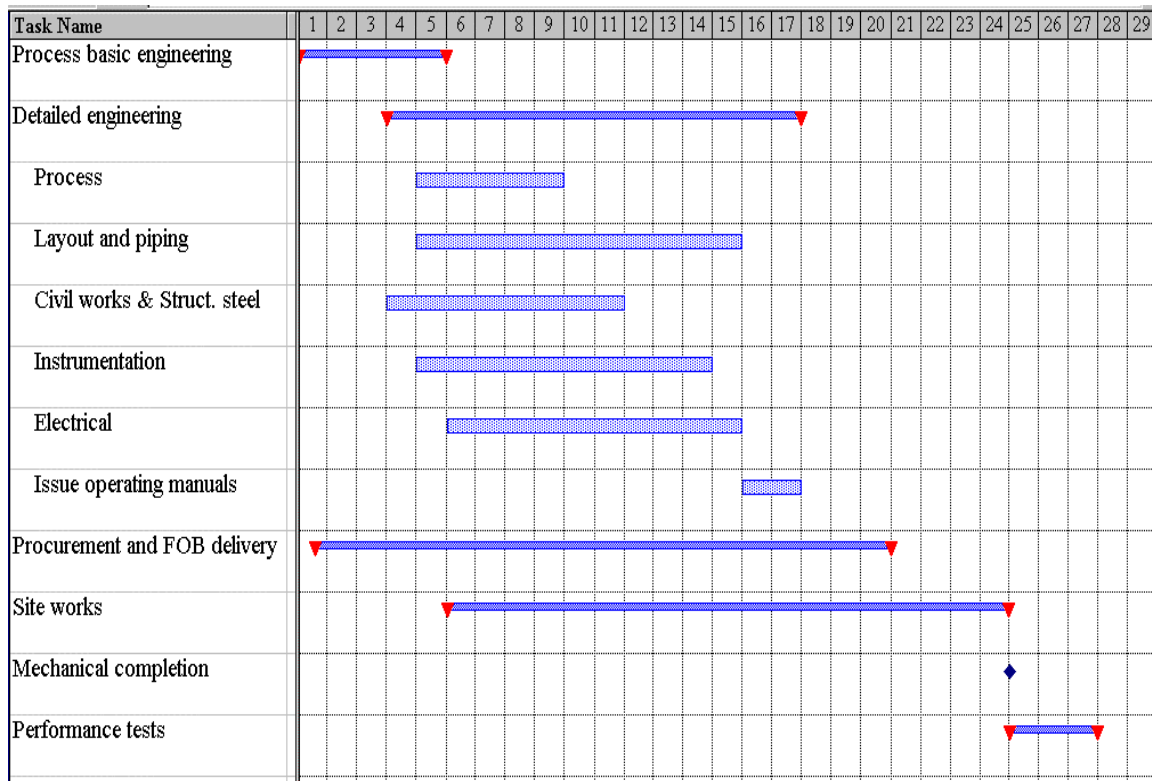
- Firstly : with the process design people to orientate the adequate choice.
- Secondly : with the basic design team. Normally the order of critical equipment items must be issued during that stage.
- Thirdly : with the detailed design team. That team will approve the final design of the equipment and is in need of its physical and operational final characteristics to complete its task.
- Fourthly : with
 - o the construction team
 - o the commissioning team
 - o the start-up team.

Many times it has appeared difficult to organize such flexibility and rapid exchanges of information when all the team is not integrated in a single entity for many reasons which can be summarized as follows:

- misunderstanding of information absolutely needed by other teams
- conflict of interest between the various teams
 - o the detailed design team is expecting the information as early as possible
 - o if more time is allocated to the procurement department, eventually better the purchasing conditions are achievable.

A single entity will certainly better manage the balance between the various interests with the only view of the final realisation at the best price and on time.

2. Total Separation of basic and detailed Engineering



When efficiently conducted with the view shared by the Owner and the Contractor on the only target which is to deliver the project in quality as early as possible, it is generally achievable that within 3-4 months after the contract effectiveness some areas are sufficiently defined and agreed to allow the start-up of the detailed engineering activities. This is generally only possible if the detailed engineering is under the same responsibility as the basic activities as that entity will be the only one to weigh properly which are the risks linked to that early start-up of detailed works.

By such an efficient procedure, it is generally possible to save two to three months on the delivery of the project.

3. Orders for the local Works

When dealing with a single entity on a lump sum turn key basis, generally those Contractors, to build up their bid price, have been in contact with many companies for the realisation of the local works and therefore, the final touch of the contract for that portion of the work is generally started up as early as the project is enforced allowing an adequate time to clearly negotiate the scope of work, the schedule and the price.

The consequence is an opening of the site at an early phase and a construction team which is fully established ready to work as early as the first information and equipment are delivered to site.

That procedure is also potentially saving months on the final delivery date and there are many other possibilities to save execution time when the project is handled by a single entity on delivery of equipment, performance test demonstration, etc.

B. MASTERING THE ON-STREAM FACTOR

As shown on the previous economical analysis graphs, the damaging impact of a plant which cannot produce at full design capacity is extremely harmful on the profitability expected from the project :

- certainly one of the key aspects is in the Owner's hands when he is selecting the process he will apply for his realisation. Few months delays occurring in the tuning of the plant or in de-bottlenecking, some areas are rapidly decreasing the yearly production rate and are generally much more costly in term of project profitability than the eventual saving made upfront.
- another key aspect is Raw Materials, their selection and their impact on plant design.
- the second aspect which is also in the hands of the Entrepreneur is the volume of the sale. There is no need to consider a large production plant when the market is not existent or not efficiently approached.
- but on the on-stream factor also single entity management can improve largely the achievement of the goal by an efficient transmission of key information in order to avoid losses of information between the various steps of the project realisation. That loss of information is immediately sanctioned by a delay on the plant start-up and eventual very costly bottlenecks in the operation.
- a very significative plus is also eventually obtained because all levels which have been involved in the project realisation will be mobilized (or mobilizable) to supply client's employees with an efficient training course and to support the company start-up squadron during the commissioning and the test run of the project.

C. MASTERING THE INVESTMENT BUDGET

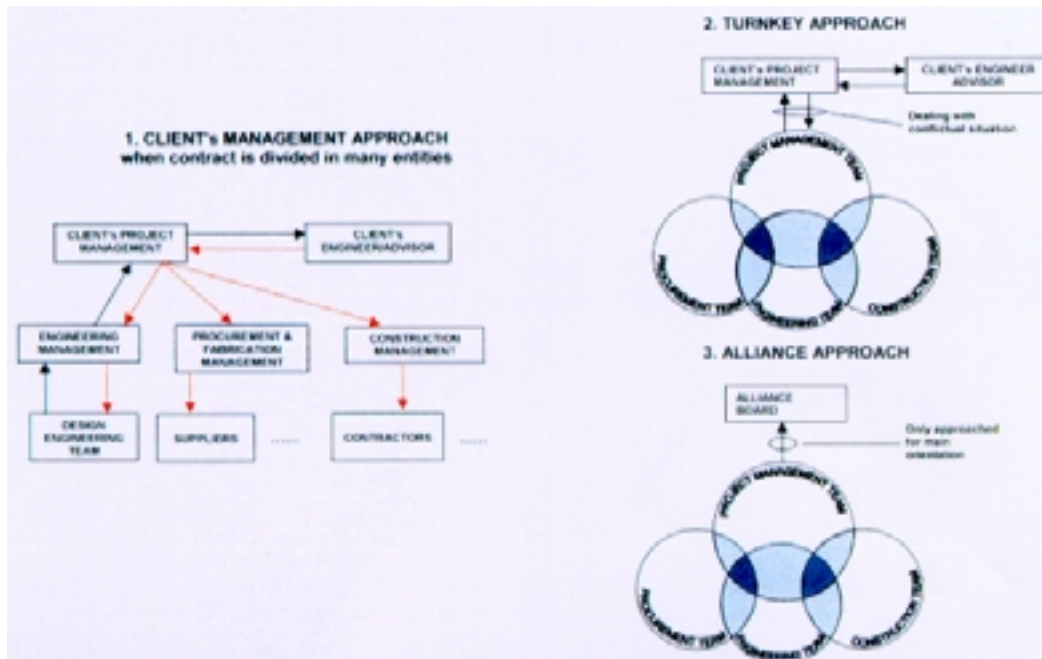
Even if this is not the most sensitive parameter on the profitability of a project, its impact can fundamentally change the investment decision.

Then the idea to split up the project into portions gives sometimes a first impression that the investment mastering will be greater.

On the other hand single entity will certainly provide numerous of advantages, by

- o decreasing the risk of wrongly ordered equipment by lack of transmission information
- o very rapid, and therefore less costly, reaction when during design development some adaptations are needed on equipment
- o when Owner is not in frequent contact with the procurement market, he will, by dealing with a general contractor,
 - be better informed about the market prices of equipment specifically designed for the fertilizer business
 - enjoy the price level that a large organisation can obtain
 - facilitate all procurement procedures which will be imposed by suppliers to secure payment of goods.

What kind of single entity can be considered ?



A. Turn Key Lump Sum Contract

This is certainly one of the approaches that Client can consider and this approach has certainly a lot of merits which can be summarized as follows :

- when the contract is negotiated, each party knows clearly its scope of work, responsibility and price
- only conflicts between the contract basis and the reality of the project will be reported to Owner and therefore, Owner has time to focus his attention on the other major aspects of his challenge which are :
 - sale of product
 - volume of sale
 - negotiation of raw material availability and price
 - etc.
- normally, he will collect, on time, a plant which will deliver the product in quantity and quality specified in the contract.

What are the difficulties to deal with in turn key projects?

- Sometimes, change orders are the origin of difficulties especially if the project is not correctly defined by Owner at the time of the contract enforcement and that numerous change orders are needed all along the project development.
- When contracts are not precise enough on the scope of work, on the material quality or when the price has been pushed unreasonably low, conflicts could appear rapidly on the quality of equipment delivered by contractor.
- When wrong process has been initially selected, at hand over time the Owner will collect a project not operating according his expectations and, in no case he can expect to be totally compensated for the problems he will encounter all along the life of the plant.

B. Alliance, Partnership Contract

To answer those difficulties, the contracting entities servicing the chemical fertilizer industry have made during this decade a real strategic move, putting more emphasis on their client and on how a contractor and its client can maximize the value of their relationship by :

- integrating Client (or close to Client's organisation) in a fully integrated task force for project realisation
- blending the competencies and capabilities of both parties to obtain faster response and greater flexibility
- creating a team work spirit to dynamically master all troubles which could arise during the realisation.

When the execution is made through an Alliance/Partnership contract, this kind of new relationship is certainly very well organized.

The main objectives of that new relationship are:

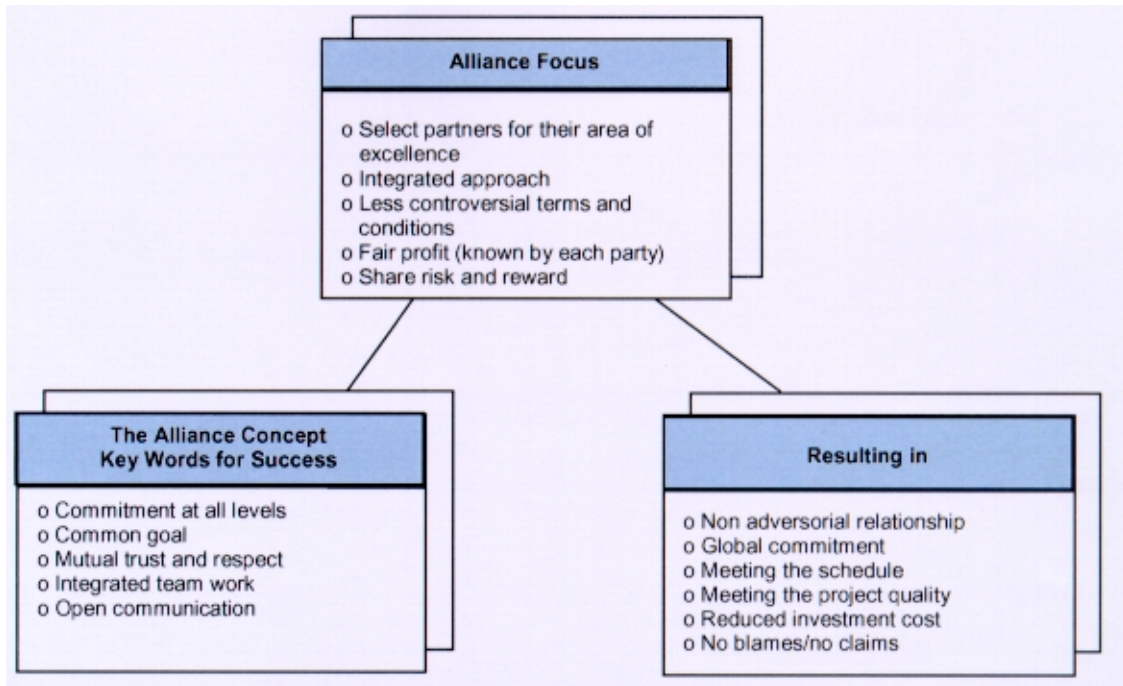
- all parties focus on the final business result
- merging of individual goals of all parties to achieve an exceptional overall result
- integration of activities and capacities
- elimination of work duplication
- transparent commercial arrangement "open book".

The benefits from alliance contracting arise through improved communication and combination of strength and knowledge of all the concerned parties. Advantages will be reaped on :

- investment (cost reduction)
- schedule of realisation (shortest duration – fast track project)
- initial quality (better quality and lower trouble shooting phase)
- final quality (better on-stream factor and lower production costs)

The remuneration of the participating parties is to be defined in advance, but generally is based on a compensation of real cost including a fair profit. At the end of the project a gain sharing or a risk sharing based on several aspects of the project execution is distributed. This scheme can include by example :

- target investment cost
- completion on schedule
- steady operation (limited trouble at start-up)
- continuous operation (on-stream)
- performance tests
- safety and security achievement
- environmental impact
- etc.



CONCLUSION

Let us summarize this presentation recalling a few points.

To be economically successful, the Entrepreneur has to focus on many strategic aspects and to get organized to master all project challenges at the best. Those are:

- o annual revenue
- o quick realisation and best on-stream factor
- o operating cost
- o investment cost.

Dealing with a single entity could certainly be an efficient strategy to master many of those key parameters.

Now what is the most appropriate form to deal with a single entity?

- the lump sum turn key form: with little implication of Owner, but also a certain rigidity in contractual relationship
- the Alliance/Partnership form: with more implication of the Owner's team, but with the advantage of more flexible relationship.

All this is a question of taste, confidence, trust and availability of competent people to form a team of one type or another to ensure the on-time and on-budget execution of the project.