

THE SOCIO-ECONOMIC IMPACT OF REPLACING THE COMMERCIAL PORT IN SOUR BY A TOURISTIC PORT

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I Introduction

I. 1. Situation of the Project

In 1984, Sour has become a UNESCO World Heritage Site upon the request of the Lebanese Government. This designation imposes to respect certain conditions pertaining to the preservation of cultural landmarks and historical artifacts.

The Municipality of Sour has shown, since the first elections held in 1998, a strong commitment to develop the city as a major cultural and touristic center and has oriented its action consequently. In particular, it has developed the northern sea front through land filling and created a cornice and a garden.

The World Bank has chosen Sour as one among five Lebanese cities for its “Cultural Heritage Project” and execution details for the works are under course, the preliminary design being already approved. The project is overseen by the CDR.

The National Master Plan (“Schéma Directeur d’Aménagement du Territoire Libanais” – SDATL), prepared for the CDR, has stressed that the main urban pole in the South should be the inland town of Nabatieh while Sour, along with Baalbek should, be developed as “patrimonial” cities.

On the other hand, Sour has grown haphazardly during the war, high rise buildings were illegally erected just beside the archeological sites, sand was suck from the beaches and an illegal port was built to the east of the old fishermen port. This port was taken over by the Lebanese authorities after 1990 and has been used since that time mainly for the import of used cars. This port does not respect the standard requirements, and lies over a rich archeological maritime area. In spite of that, there have been talks about extending its jetty eastwards, damaging more maritime archeological remains and reinforcing the industrial character of a strategic area of the town, in opposition with its overall orientation.

This project has been strongly opposed by the General Directorate of Antiquities and the UNESCO has threatened to remove Sour from the “World Heritage list” if it was to be implemented.

It is in this context that the alternative of replacing the “Commercial Port” with a “Touristic Port” was developed at the request of the CDR by Dar Al-Handasah Nazih Taleb and Partners.

Dar Al-Handasah Nazih Taleb and Partners, in association with Sogreah, have carried out, on June 2001, three assessments:

- Archeological/Cultural Heritage Impact Assessment
- Socio-Economic Assessment & Analysis:
 - Phase 1: Assessment of Potential Markets
 - Phase 2: Social Survey and Assessment
- Environmental Impact Assessment.

The Consultant was approached to study the socio-economic impact of transforming the Commercial Port of Sour into a touristic one from two sides:

- ♦ ***Socio-Economic impact on the stakeholders*** of Sour upon the elimination of the commercial port
- ♦ ***Financial feasibility/profitability*** of investing in the establishment of the touristic port

I. 2. Methodology of Work

1- The problem therefore is of a comparative nature. The question is not to know if a touristic port is a financially feasible operation but to compare the outcomes of maintaining the commercial port or transforming it into a touristic port for the community in general and for the involved stakeholders in particular.

2- This comparison is not simply financial since financial analysis applies strictly to investors while the concern is global and concerns the whole city of Sour. Outcomes have therefore to be estimated at three levels:

- ♦ The activities of the stakeholders directly involved with the operations of the commercial (versus the touristic) port;
- ♦ The activities induced in the city by the activity of the commercial (versus the touristic) port;
- ♦ The impact of the commercial (versus the touristic) port on the overall urban and economic situation of the city of Sour.

The first two levels have to be addressed in such a way that the results remain broadly valid independently from the legal and financial setup adopted for operating the touristic port. The third level is the level at which the decision has to be made since the port of Sour cannot be dissociated from the development of the town as a whole; the ways and means through which the Government, as an investor, can payback its investment is only very partially covered by the commercial revenues of the port; the bulk of the interest lays in the induced activities and in the positive impact on the overall urban and economic situation of the city of Sour as externalities, independently from the efficiency of the tax system in capturing part of those benefits.

3- The comparison is not a static one and has to be carried along a dynamic path since the decision to move on developing the cultural and touristic character of old Sour has been taken and the process of transformation is in progress. It is precisely within this process that the project has been defined and promoted.

In order to accomplish this assignment, The Consultant adopted the following methodology:

1. ***Leisure port: financial assessment of the project*** through surveying available data, studying the costing elements provided by Dar Al-Handasah, and making reasonable assumptions to estimate revenues.
2. ***Leisure port: direct and induced activities*** through analyzing secondary data.
3. ***Commercial port: direct and induced activities*** through analyzing secondary data, and recruiting a field force to collect primary data on all the stakeholders involved in the commercial port activities.
4. ***Comparative impact on the urban environment*** doing a projection of the touristic activity in Sour and analyzing the negative impact of maintaining the commercial port.
5. ***Conclusion and recommendations*** through presenting alternatives and providing mitigation measures for negatively affected stakeholders.

It is important to bear in mind the global image of the comparative approach and its components. Two different approaches have to be followed

1. A partial approach that looks at the feasibility of a single project. In this respect the usual indicators (NPV, IRR, payback period, etc.) can be applied.
2. A global approach that looks at a global comparison of the two “states of the world”. In this respect the number of variables becomes to great and simplification is necessary.

The comparative approach stands at three levels:

- ♦ The local economy of Sour
- ♦ The national economy
- ♦ Public finance

II Leisure Port: financial feasibility

II. 1. Working Assumptions

II. 1. 1. *Time Horizon*

The study's time horizon extends over 25 years. Basic infrastructure projects such as port facilities are designed for a much longer period of time (usually 50 years). We retained 25 years to account for uncertainty and for a shorter duration for the complementary equipment that is necessitated by the project. Tables nevertheless show the usual financial indicators (NPV and IRR) for 10, 25 and 50 years.

The following timetable is assumed throughout the analysis:

- ♦ Year 0: doing the initial investment and equipping the port.
- ♦ Years 1 and on: operations and eventually improvements in the port facilities.
- ♦ For all activities whose volume is not explicitly defined year after year but is defined in terms of a single general level, an attenuation factor of 70% has been applied for year 1 and of 85% for year 2. Furthermore their volume of activity has been increased year after year, from year 1 and on, by the annual growth rate of the economy; this increase reflects the combined effects of an increase in real prices and that of the increase in quantities.

All figures are expressed in USD.

II. 1. 2. *Capital Investment*

To convert the existing commercial port into a touristic/leisure port, Dar Al-Handash has estimated the capital investment based on two assumptions as follows:

- ♦ Number of boats: the port can handle up to 50 boats in its present shape, with regular pontoons. The number of boats can be extended to 68 with extended pontoons at the cost of extending the breakwater to the east. The extension could be realized at a later stage but the works would disturb the operations of the port.
- ♦ Possibility of handling properly sea cruisers by building a floating platform of 720 m² outside the fishermen's harbour breakwater. The construction of this platform does not disturb the operations neither of the touristic nor of the fishermen's port; it can therefore be built independently at any later stage.

For each combination of those two parameters, the total investment costs (in USD) can be summarized as follows:

	Without platform	With platform
50 boats	932 530	1 364 530
68 boats	1 368 800	1 800 800

Details of the investment are shown in the annex.

II. 1. 3. *Maintenance Costs*

Given all the elements and equipments that will be made available in touristic port, Dar Al-Handasah estimated the yearly maintenance costs to be USD 50,000 for the 50 boats case and 60,000 USD for the 68 boats case.

II. 1. 4. Inflation, Growth Rate, Discount rate

Inflation will be disregarded and all figures will be therefore expressed in real 2005 terms. This does not imply any particular pattern for future inflation, it however implies that inflation, whenever it occurs, will affect in the same way the various components of the cash flow.

For the purpose of calculating present values, the discount rate will be taken at 7%, bearing in mind that this is a real discount rate since inflation is neutralized and all figures are in real terms.

II. 2. Financial Analysis

In order to determine the financial feasibility of the project, The Consultant has resorted to the building of a financial model.

This model simulates the cash flow that the operator of the Port (would it be the Government or any other public or private entity) would get from equipping the existing port into a touristic facility, maintaining it and getting revenues from leasing each of the activities included within its boundaries, namely:

- ♦ Boats
- ♦ Restaurant
- ♦ Leisure activities
- ♦ Servicing activities
- ♦ Parking

The possibility of servicing cruisers is also taken into consideration.

The model includes three scenarios: one representing the Most Likely Scenario, and the other two representing extreme cases (Pessimistic and Optimistic).

Each of those three cases encompasses different values for parameters that represent the economic environment.

Some indicators are general, such as the rate of growth but most are market indicators that affect volumes of demand and levels of prices for each of the activities.

II. 2. 1. *Base assumptions*

Apart from boats and cruise liners, there are four sources of revenues for the touristic ports which are basically from the renting of areas for:

- ♦ Restaurant
- ♦ Leisure activities
- ♦ Servicing activities
- ♦ Parking

Base rental values

The Consultant estimated the rent of each of those equipments by comparing it to a benchmark for similar equipments in Beirut and applying an attenuation factor to take into account the price differential between Sour and the Beirut area:

Item	Benchmark description	USD/Unit	Attenuating factor	Estimated rent
Restaurant	Restaurant at Samaya Kaslik	40,000	50%	20,000
Leisure activities	Leisure activities at Riviera	30,000	50%	15,000

Servicing activities	Similar to leisure activities	15,000	100%	15,000
Parking	50% of expected revenues	20,000	50%	10,000

Concerning boats, a benchmark has been defined. The price is expressed in USD per year for the rental of one meter length along the dock, bearing in mind that an average boat needs 7.5 m (small harbour for 50 boats) to 8.2 meters (larger harbour for 68 boats).

The benchmark is taken from “St. Georges” marina in Beirut and “Marina Joseph Khoury” in Dbayeh. It stands at 400 USD.

We assumed a base price of 280 USD, corresponding to a rebate of 30% as compared to the benchmark.

Concerning cruises, we assumed a yearly income for the port of 20,000 USD.

II. 2. 2. Variations for extreme scenarios

The assumptions have been modulated from the “most likely scenario” to cover the “Pessimistic” and the “Optimistic scenarios as follows:

Scenario	Pessimistic	Most likely	Optimistic	Rate of variation
Restaurant	16 000	20 000	24 000	20%
Leisure activities	13 500	15 000	16 500	10%
Servicing activities	12 000	15 000	18 000	20%
Parking	9 000	10 000	11 000	10%
Boats (Lm)	240	280	320	15%
Cruises	0	20 000	80 000	

We assumed different rates of variation to account for the volatility of each of the activities and its reliance on the external market as compared to the local one.

We considered that no income from cruises would be available in the pessimistic scenario. In the “most likely” scenario, the income of 20,000 USD would begin in year 7 while, in the “optimistic” scenario an income of 80,000 USD would be derived from cruisers, beginning in year 6 after the achievement of the landing platform.

II. 2. 3. Growth assumptions

We assumed yearly rates of growth of

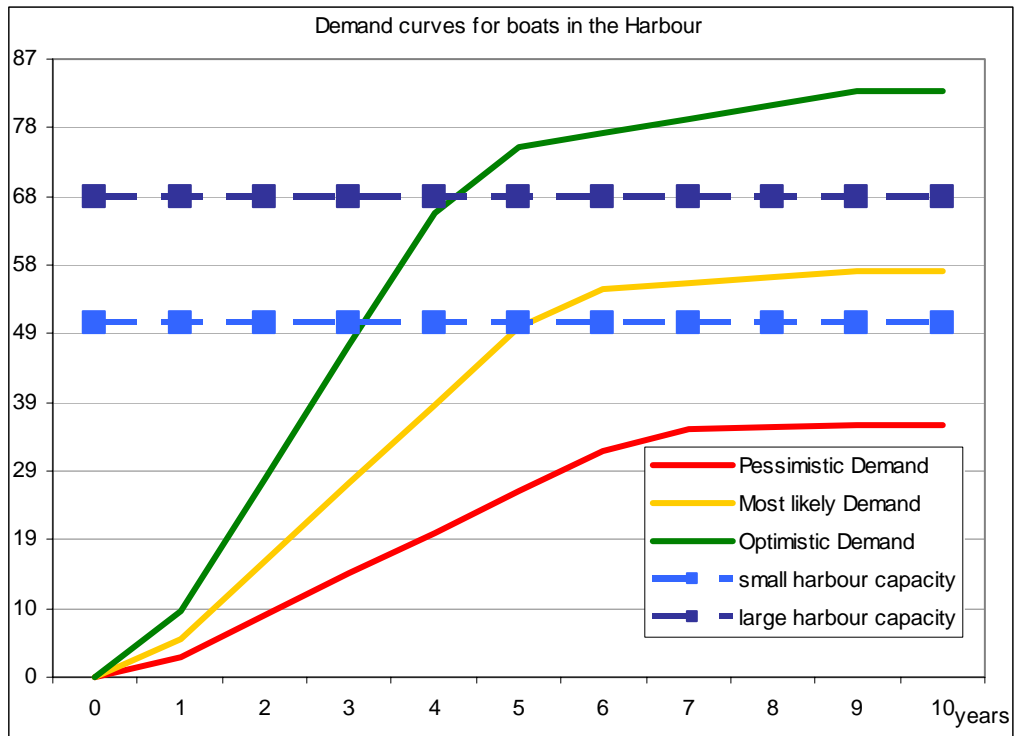
- ♦ 2% in the “pessimistic scenario”
- ♦ 3% in the “most likely scenario”
- ♦ 5% in the “optimistic scenario”

These rates apply until year 15. Afterwards a uniform rate of 3% is adopted in order to avoid too large a divergence at a time that falls beyond what is seeable.

II. 2. 4. Demand and price patterns for boats

We estimated three demand curves for boats representing, for each scenario and with the adopted price, the evolution of demand over the first 10 years. We assumed beyond that date that demand would increase by half the rate of growth of the economy while prices would increase by half the rate of growth if demand can still be met and by the full rate of growth if demand exceeds the available level of offer in the port.

The following graph shows the demand curves for the first 10 years:

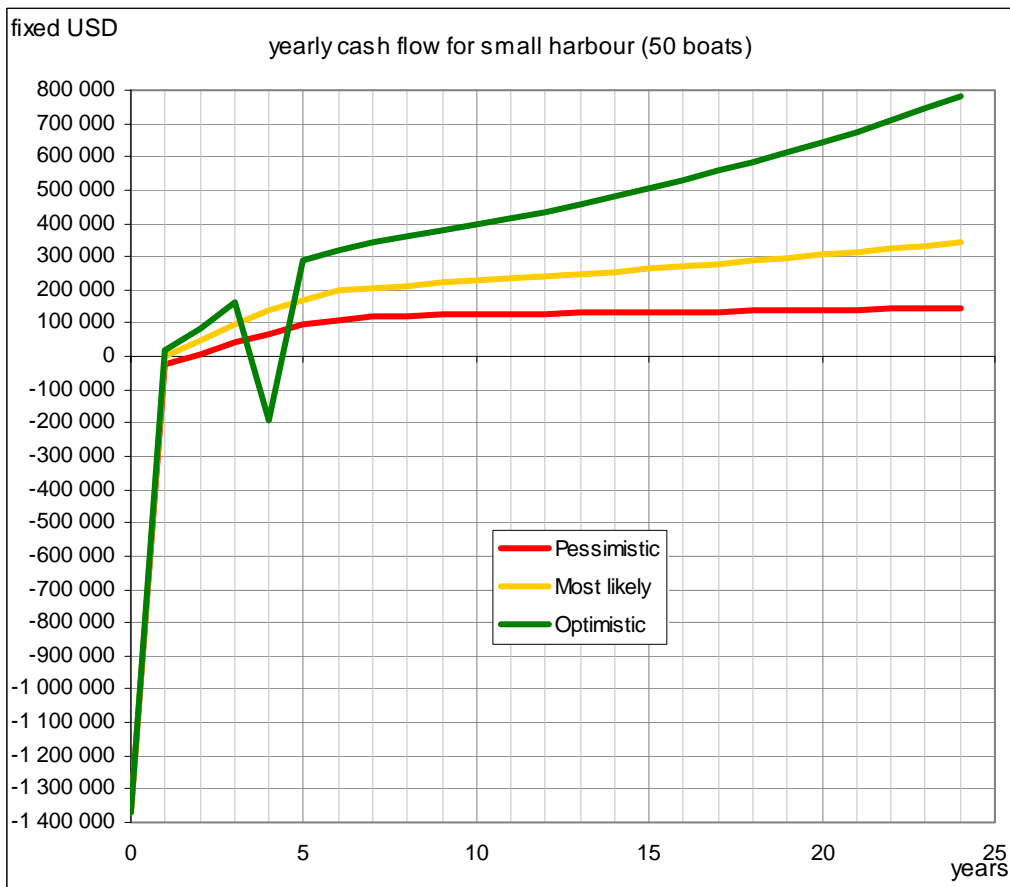
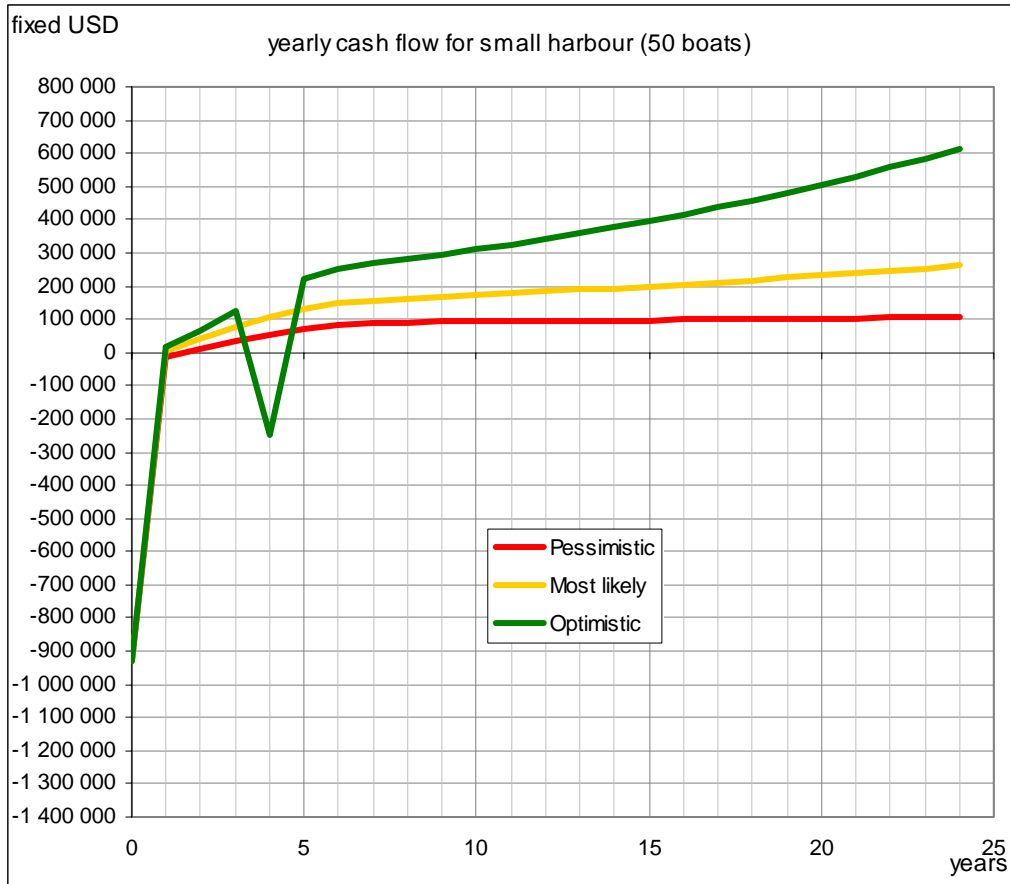


II. 2. 5. Cash flows simulations

On the basis of the assumptions listed above, cash flow simulations were carried out. For each of the six basic cases:

- ♦ Two sizes for the harbour
- ♦ Three scenarios for the economic environment,

yearly cash flows are presented in the two graphs in next page.



Results

For each of the six basic cases, we calculated Net Present Values at the horizon of 10, 25 and 50 years at a discount rate of 7%, Internal Rates of Return for the same periods and Pay-Back periods. Revenues for years 5, 10 and 25 are also shown.

Those results neglect an important fact that is linked to the comparative nature of the approach. Otherwise, the simulations should have accounted for the cost of construction of the existing harbour.

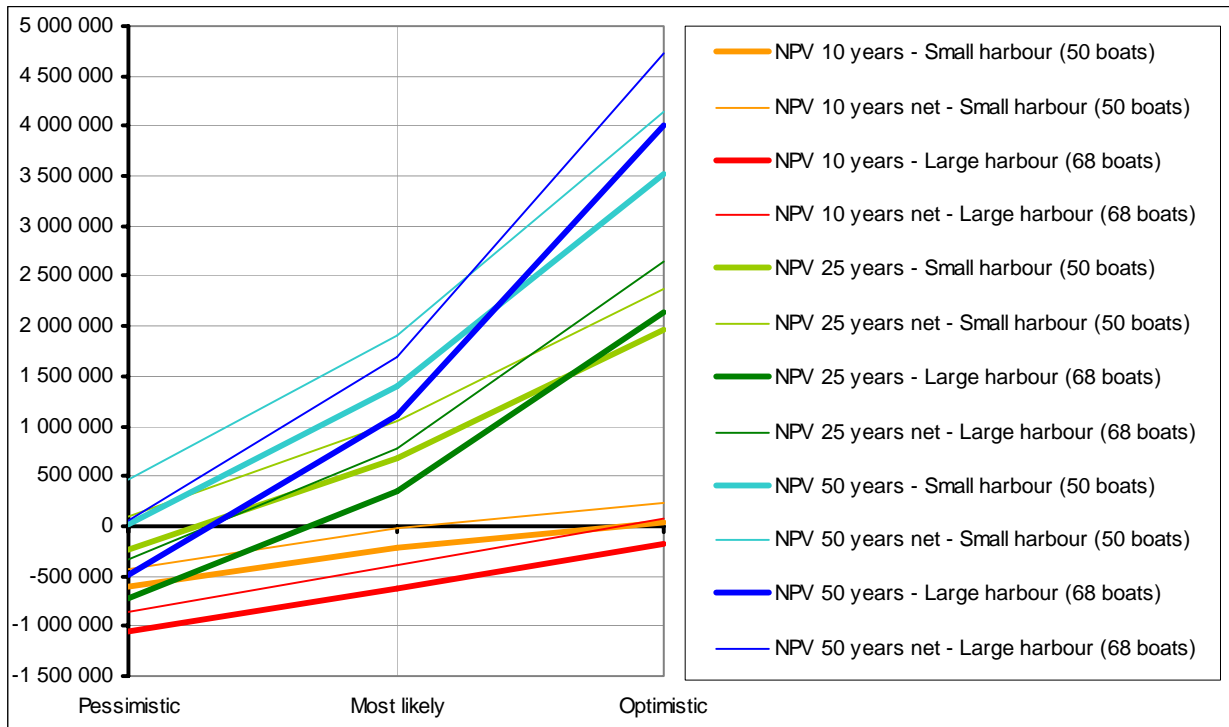
But the question is not to study the feasibility of a touristic harbour from scratch. It is to study the feasibility of transforming an existing commercial harbour into a touristic one. In this respect, the costs of maintenance of the touristic harbour should not be incorporated as such into the calculations since the operator (the State) is already incurring expenses for the maintenance of the commercial port (wages, purchases, energy, etc.). Only the difference is meaningful.

We assumed that the present maintenance is half that is needed for the touristic port, knowing that this is a conservative hypothesis and the same usual financial indicators were recalculated net (of the already incurred cost of maintenance).

Results are summarized in the following table:

Hypotheses: Size Case	Small harbour (50 boats)			Large harbour (68 boats)		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Results:	0	0	0	0	0	0
NPV 10 years	-610 000	-220 000	30 000	-1 060 000	-620 000	-170 000
NPV 25 years	-240 000	680 000	1 960 000	-730 000	340 000	2 130 000
NPV 50 years	20 000	1 400 000	3 530 000	-490 000	1 100 000	4 000 000
NPV 10 years net	-430 000	-30 000	230 000	-850 000	-400 000	70 000
NPV 25 years net	90 000	1 040 000	2 380 000	-330 000	770 000	2 640 000
NPV 50 years net	470 000	1 900 000	4 140 000	50 000	1 700 000	4 730 000
IRR 10 years	-9.3%	2.5%	7.5%	-15.1%	-2.7%	4.8%
IRR 25 years	4.4%	12.4%	18.0%	0.9%	9.0%	15.8%
IRR 50 years	7.1%	13.6%	18.6%	4.6%	10.8%	16.6%
IRR 10 years net	-3.6%	6.4%	11.0%	-8.9%	1.0%	7.8%
IRR 25 years net	7.9%	15.0%	20.2%	4.5%	11.4%	17.7%
IRR 50 years net	9.8%	15.8%	20.7%	7.2%	12.7%	18.4%
payback period	16.2	9.0	8.1	22.8	11.3	8.7
payback period net	12.1	7.7	7.4	16.3	9.6	7.9
year 5 revenues	100 000	180 000	220 000	110 000	190 000	290 000
year 10 revenues	130 000	230 000	410 000	140 000	260 000	490 000
year 25 revenues	190 000	360 000	710 000	200 000	400 000	850 000

The main indicators are shown in the 3 following graphs:

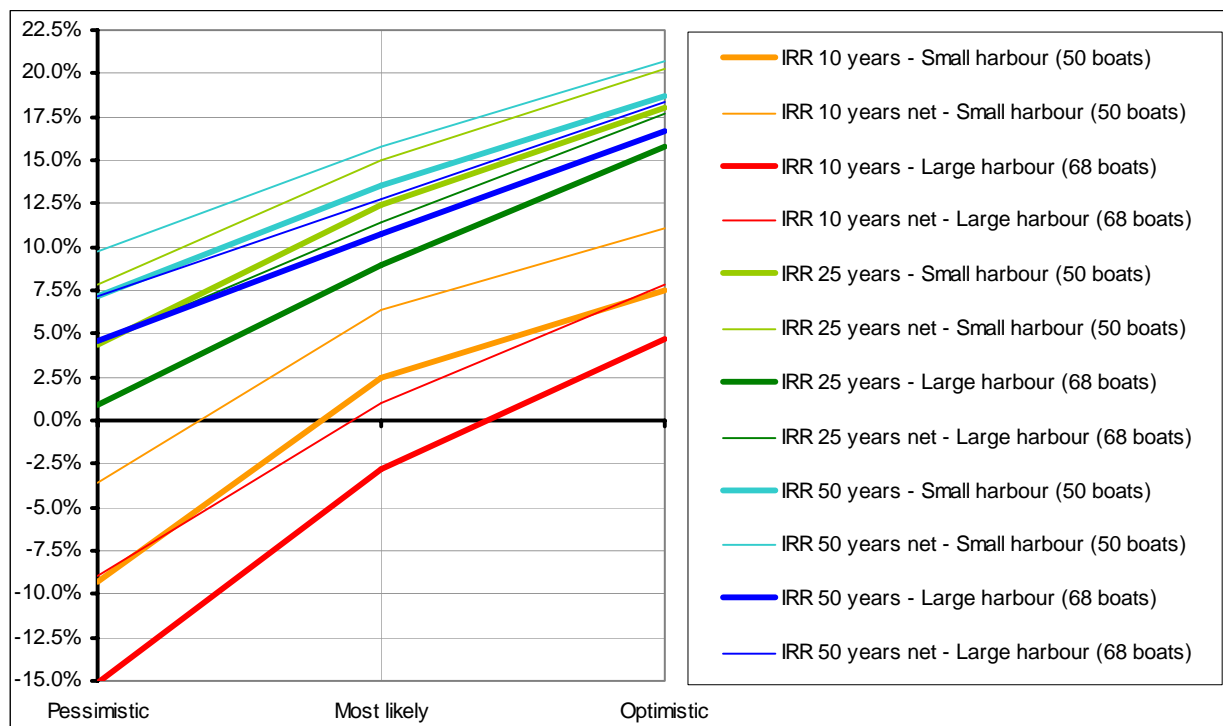


10 years NPV's are negative in all cases; this is simply in the nature of the investment. Nevertheless NPV's become positive or nil for the "optimistic" scenario and for the "most likely" once incurred maintenance is accounted for.

25 years and 50 years NPV's are positive in the "most likely scenario" and in the "Optimistic scenario". They remain close to 0 in the pessimistic scenario and are clearly positive, even in that case when incurred maintenance is accounted for.

The small harbour looks preferable to the larger one almost in all cases. It is only in the long term (25 and 50 years) and only in the "Optimistic scenario" that the larger harbour gains advantage. It is therefore recommendable to build the small size harbour and to wait to see if the optimistic assumptions realize to extend it.

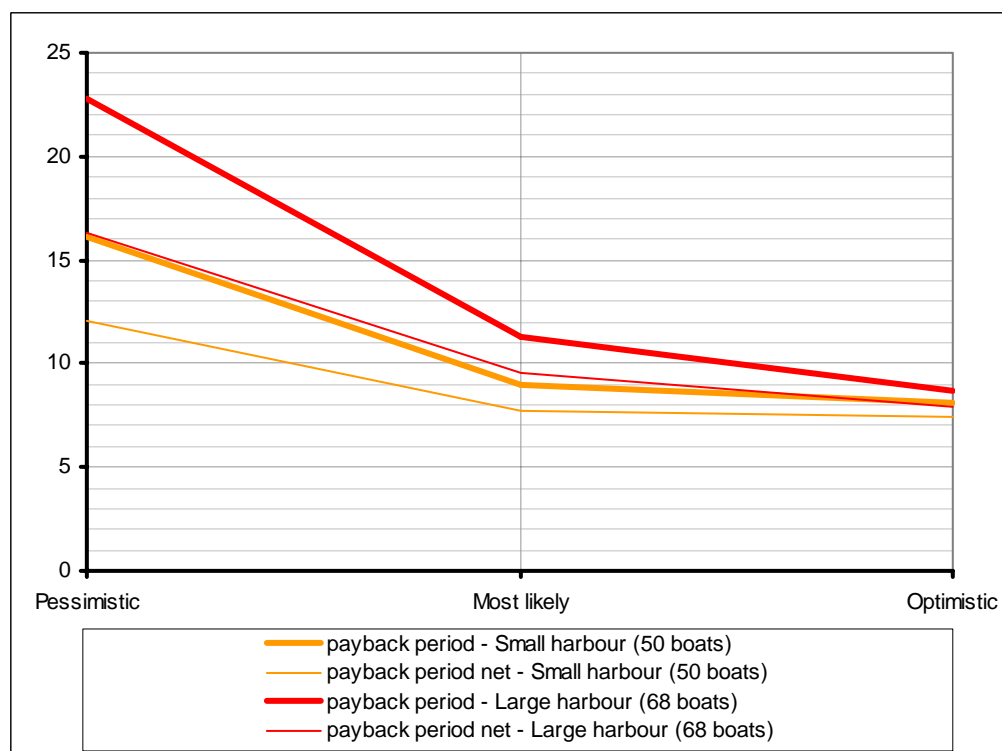
The landing platform is a decisive factor in explaining the large difference between the "optimistic scenario" and the two other ones.



IRR's for 25 years and for 50 years are close; this confirms the consistency of the model and leaves the 10 years IRR with little signification.

In all cases, the small harbour is preferable.

The levels attained are encouraging: 6%, 13% and 18% in the “pessimistic”, “most likely” and “optimistic” scenarios respectively, without deduction of the already incurred cost of maintenance and 9%, 16% and 20% otherwise.



The payback periods are quite acceptable, even in the “pessimistic case” for an investment of this nature: 16 years or 12 when the already incurred cost of maintenance is taken into consideration.

It falls to about 8 or 7 years both for the “most likely” and the “optimistic” scenarios, which is extremely encouraging. The fact that the payback periods of the “most likely” and the “optimistic” scenarios are close underlines the robustness of the project even in its first years.

II. 2. 6. Conclusions

It appears clearly that the project is very favourable and that it becomes extremely profitable if the economic environment in Sour improves in general terms and at the level of touristic activity in particular. This latter assumption is completely in line with the ongoing projects in the city.

It appears that the small version of the harbour is preferable and that the construction of the landing platform should become justified in a few number of years.

The legal and operational setup that can fit with the feasibility study above can be that of a public entity leasing separately or jointly the available activities or that of a global concession (BOT type) given by the Government under close supervision and within fair terms that allow for adjustments with the improvement of the activity and that encourage the concessionary to promote activities, realize investments and ensure good maintenance. In this respect, the figures appearing in this study can set the framework for the negotiations and the contracts.

III Leisure Port: Directly and Indirectly induced Activities

The direct returns of the operations of the touristic port by itself represent only a small part of its social and economic effect.

A very important aspect is that of the activities that the touristic port generates through its components.

Considering the high level of unemployment in the country and the very low level of leisure equipment in the area, it is justified to assume that the Added Value generated through those activities would not have emerged otherwise, at least for a significant period of time.

III. 1. Definitions and general economic parameters

In the previous section, the activities included in the touristic port have been envisaged only through the rent they pay to the management of the port. But the rent is only the price of one input for each of those activities: location. In economic terms, what counts is the total amount of added value by the activity since added value represents the wealth produced through, the available income deriving from any activity. The inputs of any single activity represent sales for other activities or imports, those sales split again in added values and in inputs, and so on. At the end, through the whole chain, the initial purchase splits into local added values and imports.

The total impact of this chain can be derived from the Input-Output matrix of the economy. In Lebanon, according to the official estimates for the National Accounts for year 1997 (the latest available) produced in 2003 by the Lebanese Ministry of Economy and Trade, the impact of 100 expenditure on consumption splits as follows:

- ♦ 68.6 in local added value (51.1 through production of goods and services and 17.5 in commercial margins)
- ♦ 31.4 in imports

We do not have figures about the structure of expenditure of tourists, it can be assumed to be comparable to that of residents.

But there is a second chain. Added values split into wages, profits, interest payments and income taxes for the Government. Since wages, profits and taxes (through public expenditure) end in consumption and investment; they again provoke a secondary chain of purchases that divides between added values and imports. Those added values go into the same cycle and so on.

In a closed economy, such a chain develops along time and its effects are essentially affected by the propensity to save. In an open economy and especially in an economy such as the Lebanese economy that suffers from huge external imbalances, the effects are marked, not only by the propensity to save, but also by the propensity to import that is not balanced by a comparable external demand on domestic goods.

Nevertheless, by simple calculations, one can estimate the total effect of a given amount of increment in expenditure on consumption over time and derive its present value (at the discount rate of 7% used in this paper). For 100 expenditure on consumption in a given year (or for 68.6 added value in the same year), the net present value of the domestic value added induced is 179 and that of imports is 82 (respectively 52).

III. 2. Activities directly and indirectly induced by the project

In this respect, it becomes important to estimate the change in the amount of expenditure and/or added value due to the transformation of the commercial port into a touristic one.

One simple way to do that is to relate value added to the number of workers and to assume an average ratio of added value per worker for each type of activity derived from National Accounts and Labour Force studies.

The table below shows:

- ♦ the new jobs created by the touristic port by activity
- ♦ the average value added by activity derived from 1997 figures, updated through the official growth rates up to 2004 and reduced by 20% to account for regional unbalances,
- ♦ the value added resulting from the multiplication
- ♦ the value added that results from the average productivity stemming from the field survey carried in Sour and that amounts to 11,970 USD.

Activity	(1) N° of Jobs	(2) individual value added (10 ³ USD)	(1)*(2) Added value (10 ³ USD)	Added value - Sour average (10 ³ USD)
Restaurant	20	11.6	239	231
Leisure Area	2	13.3	24	27
Servicing Area	2	13.3	24	27
Parking	2	13.3	24	27
Boats Rental	5	13.3	60	66
Management	3	13.3	36	40
Total	34		407	417

The two estimates being very close, the first one will be retained hereafter.

In order to assess for the impact over time some other assumptions have to be made. The main one relates to the substitutability over time between the activity under study and potential substitute activities that might arise with time even if the activity had not been implemented. In order to catch that effect an attenuation factor was introduced, estimated at 15% per year, meaning that 85% of the income derived from the project would have appeared anyway in the next year, 72% the year after and then 61% etc. The effect of growth has also to be taken into account.

By combining growth, substitution and induced effects, we reach the net present value of income attributable to the activities in each scenario:

scenario	Pessimistic	Most likely	Optimistic
growth rate	2%	3%	5%
direct NPV of income (10 ³ USD)	2 155	2 223	2 374
Total (direct and indirect) NPV of income (10 ³ USD)	5 613	5 789	6 183

The increase in activity in Sour can go along with an increase in the activity in all parts of the country (even though with different rates) or it can be, at least partially due to the displacement of some activities from other areas into Sour.

We estimated that 30% of the increase in the activity in Sour is due to displacement and translates into losses in the economy of the rest of the country while 70% are pure increase.

IV Commercial Port: Directly and Indirectly induced Activities

IV. 1. Current Situation

The import of cars constitutes 96% of the total imports arriving to the Port of Sour. This being said, the elimination of the commercial port will hence have a major impact on this industry specifically.

According to statistics provided by Lebanese customs the car imports through Sour Port have decreased from 78 millions USD in 2001 to 42 millions in 2004, a decrease of 47% in 3 years.

Different factors might lead to such a decrease:

- ♦ Import of cars in Lebanon is decreasing due to the general economic situation
- ♦ Import of used cars is decreasing because people are shifting to buying new cars that are affordable in terms of prices and have a lower consumption in petrol.
- ♦ Import of cars through Sour Port is decreasing because imports have been shifted to another port.

IV. 1. 1. *Total Import of Cars in Lebanon*

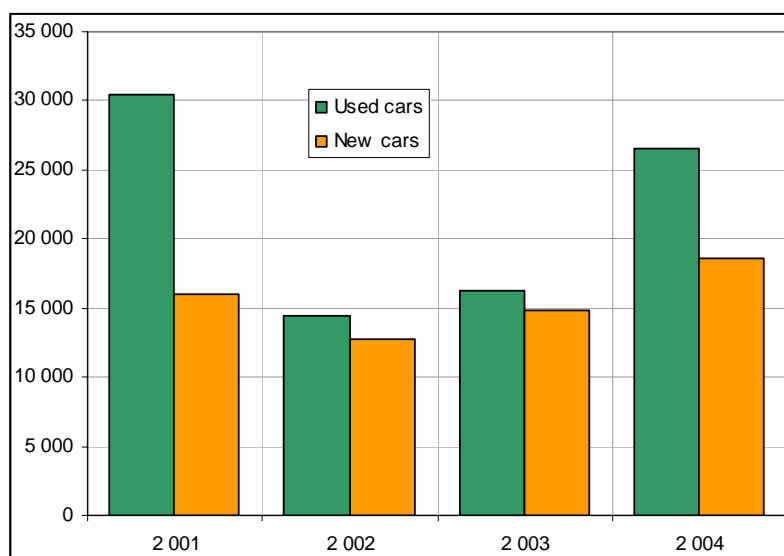
According to Lebanese customs statistics, car imports in Lebanon have increased from USD 558,761 in 2002 to USD 829,063 in 2004, or an increase of 48%.

Therefore, it would not be accurate to state that the decreasing trend in Port Sour is justified by a national decreasing trend.

IV. 1. 2. *Import of Used Cars*

	2 001	2 002	2 003	2 004
Used cars	30 428	14 429	16 237	26 576
New cars	16 008	12 770	14 788	18 657
Total	46 436	27 199	31 025	45 233
% new cars	34%	47%	48%	41%

Noting that 2001 and 2002 figures have been affected by the expected application of VAT beginning of February 2002, there is no tendency of decrease in the share of used cars and their number is clearly increasing, at least for 2003 and 2004.



Source: Lebanese customs

Therefore, it would not be accurate to state that the decreasing trend in Port Sour is justified by the decreasing trend of used cars.

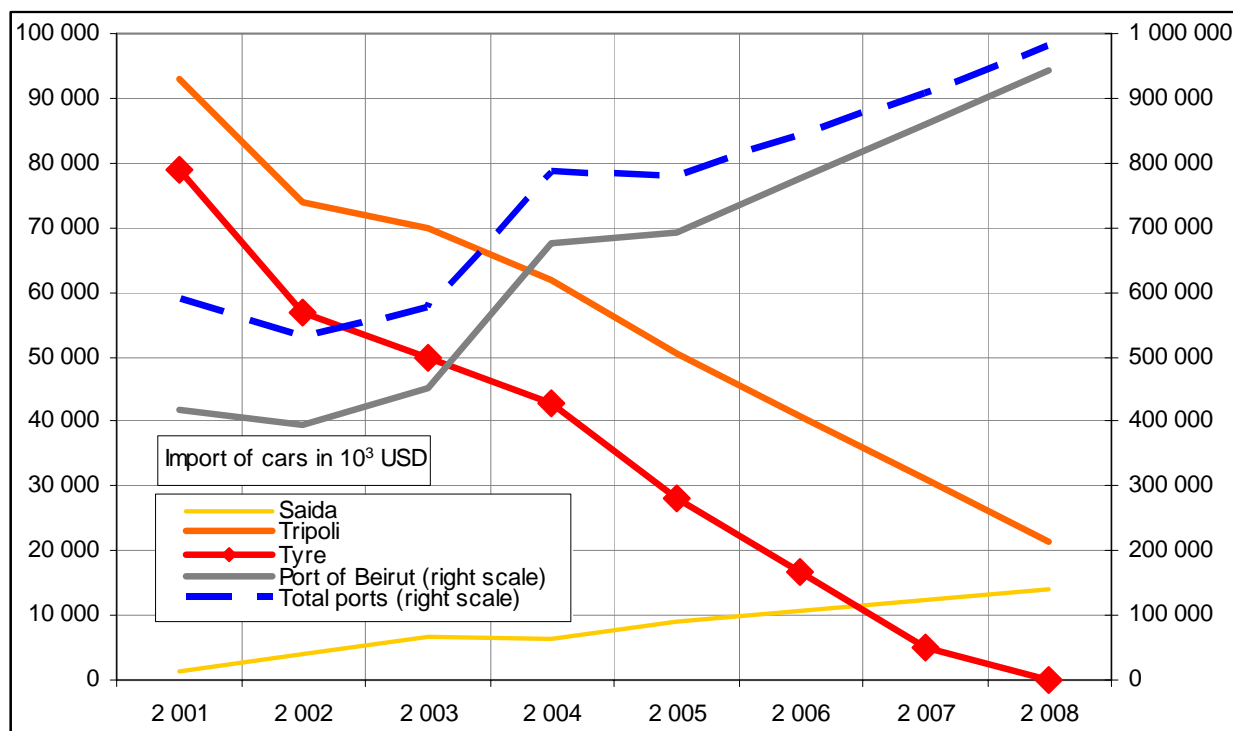
On the basis of the two findings, the decrease in the activity of the Port of Sour is essentially due to the shift of imports to other ports.

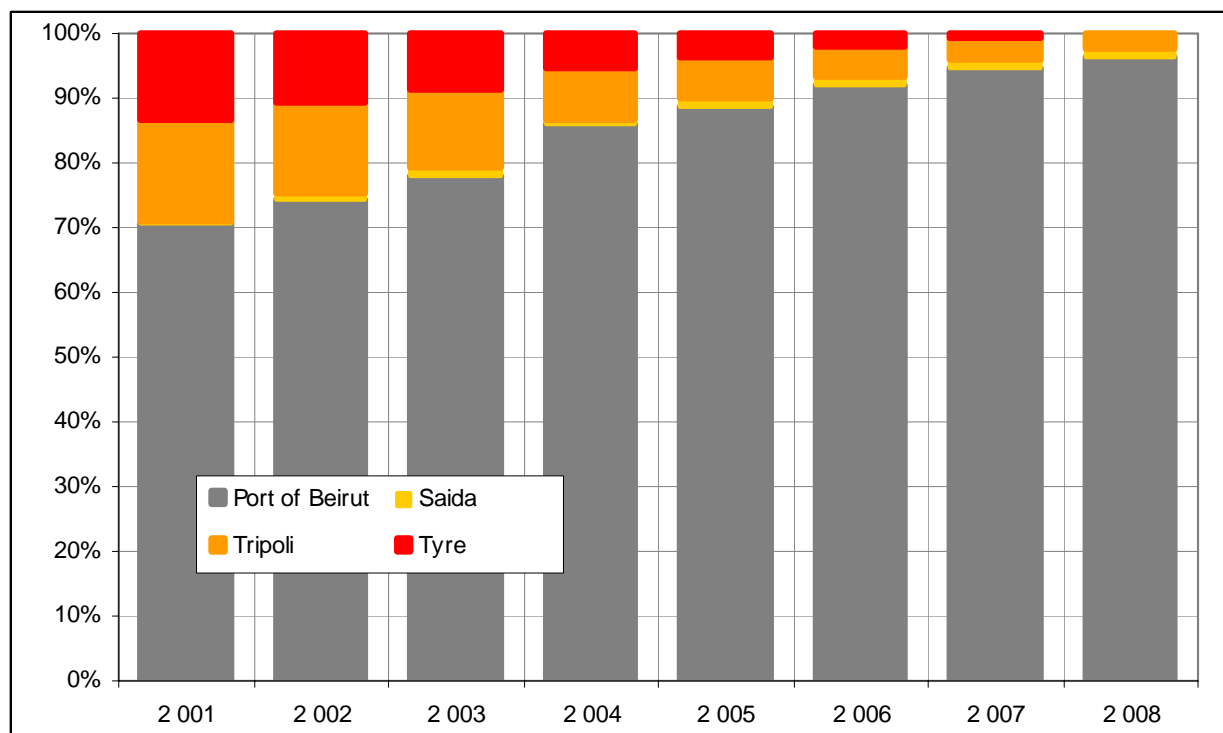
IV. 1. 3. Import of Cars in Lebanon by port of entry

According to statistics provided by Lebanese customs the car imports in Lebanon have decreased in all the ports except for the Port of Beirut, as shown in the following table and graphs:

We proceeded to an extrapolation of the trends observed since 2001 over the next four coming years. It shows that the activity of the port of Tyre should vanish not later than 2008. The decrease is not only in absolute terms but also in relative terms: the rate of decrease of the share of Sour over the past years was 25% per year.

Import of cars In 10 ³ USD	2001	2002	2003	2004	2005	2006	2007	2008
	Real figures					extrapolation		
Port of Beirut	416 889	393 064	450 212	675 960	692 622	776 058	859 494	942 930
Saida	1 253	3 924	6 616	6 204	8 886	10 640	12 395	14 149
Tripoli	92 847	73 988	69 818	61 925	50 411	40 717	31 023	21 330
Sour	78 874	56 846	49 779	42 690	28 143	16 581	5 019	0
Total ports	589 863	527 822	576 425	786 779	780 060	843 995	907 930	978 409
Port of Beirut	70.7%	74.5%	78.1%	85.9%	88.8%	92.0%	94.7%	96.4%
Saida	0.2%	0.7%	1.1%	0.8%	1.1%	1.3%	1.4%	1.4%
Tripoli	15.7%	14.0%	12.1%	7.9%	6.5%	4.8%	3.4%	2.2%
Sour	13.4%	10.8%	8.6%	5.4%	3.6%	2.0%	0.6%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%





Source: Lebanese customs

IV. 1. 4. Comparison of the ports of Sour and Beirut

Actually, port operations are costlier in the port of Sour than in the port of Beirut:

Activity	Sour Port	Beirut Port
Shipping from country of origin	USD 500 - 550	USD 400 – 450
Dock fees	USD 100/Car USD 300/Machine	<1250 kg: USD125/car < 1500 kg: USD200/car < 2000 kg: USD250/car > 2000 kg: USD300/car
Storage at the port	USD3 / car / day	5 days free Additional 15 days: USD50/car
FIO for transporting Co.	USD 100 per car	USD 50 – 60 per car
Clearing agent	USD 100/car	USD 150/car
transport to Sour	USD 15	
transport to Saida – Nabatieh	USD 30	
transport to Beirut	USD 50	

For a car which weighs less than 1250 kg and stays for 5 days in the port, the total cost in Sour is about 815 USD as opposed to 625 USD in Beirut. The difference is 30% and exceeds the cost of transport between Beirut and Sour. This is due to the type of ships that can land in the port (large Ro-Ro in Beirut as opposed to small traditional boats in Sour) making the cost of handling heavier.

The differential explains the decrease in the activity of the port of Sour. The reason why the decrease is not steeper relates to commercial practices that consist in grouping orders that allows for better negotiations with sellers and to charter boats for transport.

IV. 2. Businesses Involved in this Industry (Distribution Chain)

The main businesses involved in the car import industry through the Port of Sour are:

- ♦ The offices
- ♦ The showrooms
- ♦ The repair shops
- ♦ The parts shops
- ♦ The accessories shops
- ♦ The tires shops
- ♦ And the transportation companies

The Consultant has conducted a field census to study the situation of all stakeholders involved. A summary of the findings is presented here below.

IV. 2. 1. *Offices*

The offices work as intermediaries between the port and the buyers. The buyers pay the shipment fee, the customs, port fees, and commission to the office, and then the offices take care of finalizing the formalities on behalf of the buyers.

There are 6 offices that performed a total of 5,900 operations in 2004.

Some offices reported that the number of operations decreased by 40% prior to 2004

Summary of the Offices Business	
Total Number of Employees hired by the offices:	17
Average monthly income per employee in USUSD	304
Total yearly income of all employees in USUSD	75,224
Average yearly net income per owner in USUSD	52,233
Total yearly net income of owners in USUSD	313,396

1.1.1. *Showrooms*

There are 17 Showrooms and there are 16 out of them that import and order their own cars

Table XXX	
Summary of the Showrooms Business	
Total Number of employees hired by the showrooms	36
Total average yearly income of all employees in USUSD	114,480
Average number of kids per employee	2
Total open area	13,300 m ²
Total closed area	3,800 m ²
Monthly income range of owners in USUSD	4000 – 6000
Estimated number of cars imported yearly	5,000
Total yearly income of owners in USUSD	1,020,000

N.B: Open areas involve relatively little or no investment

IV. 2. 2. Repair Shops

The Consultant has surveyed all repair shops noted by the showrooms. There are 16 garages that either do Smith and painting or electricity or mechanics. The repair shops have equipment that is valued at most at USD35,000.

Table XXX	
Summary of the Repair Shops Business	
Total number of employees of all repair shops	52
Total yearly salary of all employees in USUSD	216,529
Total number of children of employees	66
Average number of children per employee	1.27
Total estimation of equipment for the 16 repair shops in USUSD	167,450
Number of repair shops out of 17 that have equipment less than USD6,000	10
Average percentage of repair shops income generated by cars imported	48%
Total income of repair shops that comes from import in USUSD	326,400

IV. 2. 3. Parts Shops

There are 11 part shops that the showrooms owners have listed. Each purchased stocks on average in 2004 for an amount of USD130,000

Table XXX	
Summary of the Spare Parts Shops Business	
Total number of people employed	22
Total yearly salary of all employees in this section in USUSD	64,092
Total estimated yearly income from imports in USUSD	219,600

N.B: all the shops surveyed reported that the activity prior to 2004 was much higher and the amount of stock they used to buy was 50% more

1.1.2. Accessories Shop

Table XXX	
Summary of the Accessories Shop Business	
Total number of employed in this sector	1
Total estimated yearly income from imports in USUSD	33,600

The yearly amount of stocks purchased varies between USD30,000 and USD50,000

IV. 2. 4. Tires Shop

Showrooms owners have mentioned 4 shops from which they buy their tires. A summary of their business related to imported cars is listed here below:

Table XXX	
Summary of the Tire Shops Business	
Total number of people employed	11
Total yearly salary of all employees in this section in USUSD	44,585
Total estimated yearly income from imports in USUSD	58,800

IV. 2. 5. Transportation

There are 14 transportation facility owners all of them married and their work depends entirely on car imports.

Table XXX	
Summary of the Transportation Companies Business	
Total number of Children	53
Total minimum yearly net revenue from imported cars in USUSD	24,062
Total maximum yearly net revenue from imported cars in USUSD	78,960
Average yearly revenue from imports in USUSD	51,511

IV. 2. 6. Impact of the Elimination of the Commercial Port

The impact of the elimination of the commercial port in Sour on the stakeholders of the distribution chain have to be differentiated. Upstream activities such as transportation and clearing offices that are directly related to the port will suffer the most: 100% decrease in transportation and 90% in clearing offices. Activities completely downstream, such as showrooms, are linked to their customer base and will not be really affected if they have to get their cars through other ports in Lebanon (we nevertheless assumed a 10% decrease). The activities in the middle will be moderately affected (we assumed a 20% decrease) :

Amounts in 10 ³ USD	Offices	Show-rooms	Garages	Parts	Accessories	Tires	Transportation	Total
No of Employees	17	36	52	22	1	11	-	139
Revenue of Employees	75	114	217	64	-	45	-	515
No of Owner	6	17	16	11	5	4	14	73
Revenue of Owners	313	1020	326	220	34	59	52	2023
Total employment	23	53	68	33	6	15	14	212
Total income	389	1134	543	284	34	103	52	2538
% Loss	90%	10%	20%	20%	20%	20%	100%	28%
Loss in Income	350	113	109	57	7	21	52	707
Loss in Employment	21	5	14	7	1	3	14	64

The loss in income can therefore be estimated at 707 000 USD in the first year after the stop of the commercial activity in the port of Sour, representing 28% of the income that is now derived from the whole chain of distribution of cars. Out of this loss, 400 000 USD concern the most affected activities (transportation and clearing offices) and 307°000 represent a high estimate for the losses incurred by the other activities.

Remembering the downward trend of the commercial activity of the port of Sour, one would assume that downstream activities should not suffer at all from the closing down of the commercial port. The steady decline in its activity while the import of cars is increasing in the country means that showrooms in South Lebanon are already shifting, for their supply, from the port of Sour to the port of Beirut.

We nevertheless kept the estimate of losses and supposed that the decline in the activity of the commercial port, had it not to close down, would not have exceeded 15% yearly (as opposed to 25% actually observed). Both assumptions are very conservative.

IV. 2. 7. Induced effects

The figure calculated above for losses is static. Losses will not remain constant over time and they induce economic effects on the local economy.

In order to assess for the global impact over time some assumptions have to be made:

- ♦ The rate of growth in the economy, since foregone income would have increased proportionally
- ♦ The annual rate of change in the volume of activity of the commercial port of Sour
- ♦ The rate of substitutability over time between the activity under study and potential substitute activities that the concerned persons might move to with time. In order to catch that effect an attenuation factor is introduced, estimated at 15% per year for the most affected activities (meaning that 85% of the income foregone in the first year would have been lost anyway in the next year, 72% the year after and then 61% etc.) and at 50% for the least affected.
- ♦ On top of that, the direct losses have to be complemented by their induced effects.

By combining growth, normal trend of activity, substitution and induced effects, we reach the net present value of the foregone income for the most affected activities due to closing down the commercial port, in each scenario:

Scenario	Pessimistic	Most likely	Optimistic
growth rate	2%	3%	5%
direct NPV of income	-1 205	-1 231	-1 289
Total NPV of income	-3 137	-3 207	-3 356

We also get the net present value of the foregone income for the least affected activities:

Scenario	Pessimistic	Most likely	Optimistic
growth rate	2%	3%	5%
direct NPV of income (10 ³ USD)	-481	-484	-491
Total NPV of income (10 ³ USD)	-1 253	-1 261	-1 278

It should be noted that the losses incurred in Sour as a consequence of the closing down of the commercial port simply means that an increase in the same activities is going to occur elsewhere along with the shift in the commercial activity from Sour to other ports.

It is not necessary that the losses be exactly compensated. We assumed that compensation for the losses incurred in Sour would be for a proportion of 85% in the rest of Lebanon.

V Comparative Impact on the Urban Environment

The persistence of a commercial port in the middle of a patrimonial city has obvious detrimental effects. Had it not been there, touristic activity would have been better and investment in tourism would have yielded higher returns.

On the other hand, if there was no port apart from the fishermen's in Sour, neither a commercial nor a touristic one, the construction of a well designed touristic port would have enhanced tourism and improved return on investment in tourism.

These simple and common sense ideas deserve being translated into quantities.

Several approaches could be used for that purpose, whether comparative or deductive.

V. 1. Projection of the Touristic Activity in Sour

The only source about the number of tourist visiting Sour (and actually any other location in Lebanon) is the number of visitors to the archeological areas. These numbers are far from representing the real volume of tourist and, furthermore, their real expenditure since archeology is only a small element in internal and in regional tourism, western tourist remain few in Lebanon and, on the other hand, a significant number of entrees in the archeological sites is probably due to students brought by their schools who do not spend significant amounts.

The total number of visitors to the main archeological sites in 2003 is shown in the table below:

	2003	2004	2003	2004
Museum of Beirut	39 287	51 772	16.5%	14.7%
Baalbek	69 605	104 320	29.3%	29.5%
Beiteddine	60 350	89 657	25.4%	25.4%
Jbeil	31 576	59 337	13.3%	16.8%
Saida	15 867	16 889	6.7%	4.8%
Sour	10 774	14 001	4.5%	4.0%
Faqra	3 749	7 096	1.6%	2.0%
Tripoli	6 398	10 240	2.7%	2.9%
Total	237 606	353 312	100.0%	100.0%

Source: Central Administration of Statistics

The figures, in general, are very low and those for Sour, in particular, are insignificant. What deserves being noted however is the comparison of Sour and Jbeil. Jbeil is also a patrimonial city around an old harbour; but is closer to Beirut than Sour and it enjoys a comparatively a much more attractive urban setup. Nevertheless the number of active persons in the old town of Jbeil whose activity is related to tourism can be summarized as follows:

	jobs	%
Hotels	49	14%
Night clubs	7	2%
Restaurants	131	38%
Shops	47	14%
Port	98	29%
DGA	5	1%
Municipality	5	1%
Total	342	100%

On the basis of a resident population of 15,000 in Jbail and with a rate of activity of 30%, activities directly related to tourism would therefore represent 7.6% of the workforce in the city.

It is clear that Sour has room to catch up.

The main component of tourists' expenditure is food.

The main restaurants in Sour that receive tourists are four. The table below presents their levels of income and derives their annual volume of sales in USD (assumed to be three times the income):

Restaurant	Average Monthly Income in Winter October – May	Average Monthly Income in Summer June – September	Yearly income	Yearly sales
Rest House	3000	8000 – 10000	60 000	180 000
Tyrous	2000	5000	36 000	108 000
Murex	2000	4000 – 6000	36 000	108 000
Shawatina	3000	8000	56 000	168 000

Source: The Consultant field work 2005

The annual sales approach therefore 600,000 USD.

Its quantification is not easy and cannot be accurate. We nevertheless attempted an estimation that we believe to be robust enough, through the following assumptions:

- ♦ The total expenditure of a tourist (national or foreigner) is equal to twice its expenditure on food – this ratio can increase if and when the location begins attracting tourists for accommodation but we shall ignore this event.
- ♦ The local added value represents 50% of tourists' expenditure

It is reasonable to consider that expenditure on food represents almost 50% of the total expenditure of tourists' (whether nationals or foreigners and keeping in mind that there are practically no accommodation facilities in Sour otherwise the proportion would have been lower).

It is also admissible to consider that the added value represents also 50% of total tourists' expenditure.

We shall therefore admit that the added value presently realized in Sour from tourists' expenditure is 600,000 USD per year.

As a comparison, the added value realized in Sour from tourists' expenditure could be estimated at around 5 millions USD (simply by applying to the number of active persons by the productivity per worker), that is between 8 and 10 times what is presently realized in Sour.

It is obvious that the local tourists' expenditure is on an increasing trend due to the permanent investment in the cultural heritage and in the touristic infrastructure in Sour.

We supposed that the yearly rate of increase of tourists' expenditure in Sour until year 15 would be as follows:

Scenario	Pessimistic	Most likely	Optimistic
yearly rate of increase	5%	12%	20%
multiplier after 5 years	1.3	1.8	2.5
multiplier after 10 years	1.6	3.1	6.2
multiplier after 15 years	2.1	5.5	15.4

Beyond year 15, the rate of increase would be equal to the real rate of growth of the economy.

On this basis the net present value of direct value added in Sour due to tourists' expenditure has been calculated. In a second step the net present value of the total value added through the multiplier that has already been defined.

scenario	Pessimistic	Most likely	Optimistic
direct NPV of income	11 096	21 994	52 557
Total NPV of income	28 895	57 277	136 867

V. 2. Impact of Maintaining the Commercial Port

Maintaining a commercial Port in the middle of a patrimonial city is clearly detrimental to touristic activities. The loss deriving from the persistence of the “commercial port in the city of Sour can be seen through various indicators: lower income, lower values of land, in any case, it expresses, lower attractiveness of the town, or of some of its neighborhoods, for tourists, etc.

It is also obvious that the loss is deeply aggravated by the success of the development of Sour as a cultural and touristic pole.

It is therefore logical to assess the negative impact as a percentage of the Value that would have been realized had the port not existed.

We assumed that 8% would be a fair and conservative estimate for that negative impact.

V. 3. Impact of implementing the Touristic Port

Implementing a touristic port in a patrimonial city clearly increases its attractiveness. It has the reverse effects of keeping a commercial port.

The positive impact will nevertheless be inferior to the reverse negative impact.

We assumed that 4% would be a fair and conservative estimate for that positive impact.

We estimated that 30% of the increase in the activity in Sour is due to displacement and translates into losses in the economy of the rest of the country.

V. 4. Putting everything together

It is now possible to fill the global comparative matrix.

From the fiscal side, the increment in income generates an increase in taxes (whether direct or on consumption and imports). We applied a flat rate of 10%.

All figures are Net Present Values in USD of 2005. They are presented in the table in the next page for the “most likely” scenario.

Moving to a touristic port		Tyre local economy		Rest of Lebanese national economy		Public finance		Global immediate change in income		Global total change in income		%
		immediate change in income	total change in income	immediate change in income	total change in income	immediate change in income	total change in income	Global immediate change in income	Global total change in income			%
Direct effects	Revenues from port operations and customs					Recuperated in other ports	0 0	0	0	0	0	0%
	Cost of maintenance of the commercial port					Saved	355 924	355	924	355	924	8%
	Financial cash flow proceeding from the exploitation of the touristic port					Gained	680 1 771	680	1 771	680	1 771	15%
Indirect effects	Activities within the touristic port (restaurant, leisure, services, parking)	Gained	2 223 5 789	Partly lost 30% (reallocation)	-667 -1 737	Taxes	156 405	1 712	4 457	1 712	4 457	37%
	Activities within the commercial port (Clearing offices, transport)	Mostly lost	-1 231 -3 207	recuperated elsewhere-15%	1 047 2 726	Taxes	-18 -48	-203	-529	-203	-529	-4%
	Activities connected to the distribution of used cars (garages, spare parts, showrooms, etc.)	Partly lost	-484 -1 261	recuperated elsewhere-15%	412 1 072	Taxes	-7 -19	-80	-208	-80	-208	-2%
Induced effects	Negative externalities of commercial port activities on a "patrimonial" city	Saved	1 760 4 582			Taxes	176 458	1 936	5 040	1 936	5 040	41%
	Positive externalities of touristic port activities on a "patrimonial" city	Gained	880 2 291	Partly lost 30% (reallocation)	-616 -1 604	Taxes (10%)	26 69	290	756	290	756	6%
Total effect: NPV			3 146 8 194		176 457		1 367 3 560	4 689	12 211	4 689	12 211	100%
Total effect: average yearly			220 574		12 32		96 249	328	855	328	855	

The consolidated results have been evaluated for each of the scenarios.

For each of them, a summary is presented showing the structure of impacts, by location and by type of effect. Amounts are in 10^3 USD of 2005, they express the estimate of the final impact (direct, indirect and induced) in Net Present Value at a discount rate of 7%.

“Pessimistic” scenario	Rest of			Total
	Tyre local economy	Lebanese economy	Public finance	
Comparative exploitation (touristic v/s commercial port)	0	0	299	299
Effects of implementing the touristic port	5 613	-1 684	393	4 322
Effects of closing down the commercial port	-4 390	3 732	-66	-724
Induced effects (externalities)	3 467	-809	266	2 924
	4 690	1 239	892	6 820
Types of effects				
Comparative exploitation (touristic v/s commercial port)	0%	0%	34%	4%
Effects of implementing the touristic port	120%	-136%	44%	63%
Effects of closing down the commercial port	-94%	301%	-7%	-11%
Induced effects (externalities)	74%	-65%	30%	43%
Spatial shares	69%	18%	13%	100%
“Most likely” scenario	Rest of			Total
	Tyre local economy	Lebanese economy	Public finance	
Comparative exploitation (touristic v/s commercial port)	0	0	2 695	2 695
Effects of implementing the touristic port	5 789	-1 737	405	4 457
Effects of closing down the commercial port	-4 468	3 798	-67	-737
Induced effects (externalities)	6 873	-1 604	527	5 796
	8 194	457	3 560	12 211
Types of effects				
Comparative exploitation (touristic v/s commercial port)	0%	0%	76%	22%
Effects of implementing the touristic port	71%	-380%	11%	37%
Effects of closing down the commercial port	-55%	830%	-2%	-6%
Induced effects (externalities)	84%	-351%	15%	47%
Spatial shares	67%	4%	29%	100%
“Optimistic” scenario	Rest of			Total
	Tyre local economy	Lebanese economy	Public finance	
Comparative exploitation (touristic v/s commercial port)	0	0	6 028	6 028
Effects of implementing the touristic port	6 184	-1 855	433	4 761
Effects of closing down the commercial port	-4 634	3 939	-70	-765
Induced effects (externalities)	16 424	-3 832	1 259	13 851
	17 974	-1 749	7 651	23 876
Types of effects				
Comparative exploitation (touristic v/s commercial port)	0%	0%	79%	25%
Effects of implementing the touristic port	34%	106%	6%	20%
Effects of closing down the commercial port	-26%	-225%	-1%	-3%
Induced effects (externalities)	91%	219%	16%	58%
Spatial shares	75%	-7%	32%	100%

It appears that in all cases most of the impact concerns the local economy of Sour (70 to 75%). The remaining impact is split between the rest of the economy and Public Finance. The more economic environment turns positive, the larger the share of Public Finance (13 to 32%) and the smaller that of the rest of the Lebanese economy (18 to -7%).

At the level of Sour, the impacts of closing down the commercial port and that of implementing the touristic one do not vary a lot between scenarios (more or less 10%). The positive impact exceeds the negative impact by about 30%.

The induced effects are greatly amplified by a positive environment in the country in general and in the touristic activity in Sour in particular.

At the level of Public Finance, the impact is largely positive in all cases. The results due to the change in the use of the Port represent only a part of the impact: about 75% in the “most likely” and in the “positive” scenarios. This confirms the nature of “public good” of the investment. In the “pessimistic” scenario, this share falls down to 34%; thus reinforcing the necessity of realizing the investment since tax revenues act as a positive buffer and stabilizer of its effects in the face of external economic developments.

Taken globally, the impact of the exploitation of the port represents 20 to 25% of the impact (it falls to 4% in the “Pessimistic” scenario). Positive impacts due to the implementation of the touristic port and negative effects due to closing down the commercial port do not vary a lot between scenarios (more or less 10%). The former are six times larger than the latter. Induced effects through externalities account for almost half of the total impact (43 to 58%).

VI Conclusion & Recommendations

VI. 1. Presentation of Alternatives

In practical terms and even though assumptions might be disputable, the choice is simple and clear:

- ♦ Keeping a commercial port that it is decaying and the activity of which could advantageously be relocated elsewhere and have Sour eliminated from the world heritage classification, investments in tourism and culture devaluated and its specific assets left inexploited
- ♦ Transferring the commercial activity of the port of Sour to the Port of Beirut that is better equipped, less than 80 kms away and more efficient and giving Sour the chance to bridge the huge negative gap that it suffered from and to take advantage of its exceptional assets.

It is between removing what could be anywhere from an exceptional location to let what cannot be anywhere else happen where it can.

In quantitative terms, the results that have been established call for some remarks:

- ♦ Even with conservative assumptions and even under the “pessimistic” scenario, replacing the “commercial” port of Sour by a touristic equipment is, in any perspective, a better choice.
- ♦ This advantage becomes larger and larger as growth improves in Lebanon as a whole and as tourism booms in Sour. In this sense, the loss would become greater and greater if the general outcome improves for the country and the town.
- ♦ In the “pessimistic” scenario, the Indirect effects of closing commercial port are overwhelming, the more the environment improves, the more direct effects and positive externalities gain weight.
- ♦ The global yearly average return on the initial investment is extremely high: it ranges from 20% in the pessimistic scenario to 70% in the “optimistic” scenario with 36% in the most likely scenario.
- ♦ What is lost here or gained here is often partly or totally gained or lost elsewhere. The same applies to the exterior. Relocation and new production have to be dissociated
- ♦ The spatial diffusion of impact has been neglected

VI. 2. Mitigation Measures

Specific actions could be launched to assist people who would be directly affected in their jobs by the closing down of the port of Sour:

- ♦ About 20 persons working in clearing offices
- ♦ About 15 persons working in transportation (trucks and cranes).

They can be assisted technically and materially to move to other jobs related to the new activities (repair of boats, tour operators or guides, etc.)

VII Appendices

1. Cost of Investment in the Touristic Port

CAPITAL INVESTMENT COST (50 BOATS)				
Item	Quantity	Unit	Unit Rate in \$	Amount in \$
<u>Pontoon:</u> Floating, Welded aluminium structure 6005 ATS; Live load 250 Kg/ m ² Length 12 m; Width 2 m	7	Nr	9,000	63,000
<u>Pontoon:</u> Floating, Welded aluminium structure 6005 ATS; Live load 200 Kg/ m ² , Length 6 m; Width 1,5 m	30	Nr	3,300	99,000
<u>Piles:</u> 60 cm; h= 10m	18	Nr	600	10,800
<u>Anchoring:</u> Guiding rings 80 cm on pile, 1m over sea level	18	Nr	60	1,080
<u>Wave Breakers:</u>	20	lm	1,100	22,000
<u>Internal Roads:</u> (Including all Services),_Average width 6.5 m	570	lm	140	79,800
<u>Parking:</u> For 100 cars	1350	m ²	50	67,500
<u>Restaurant:</u>	1200	m ²	200	240,000
<u>Cabinets:</u>	120	Nr	1,000	120,000
<u>Toilets:</u>	30	Nr	900	27,000
<u>Public Garden:</u>	700	m ²	30	21,000
<u>Rehabilitation:</u> Existing Harbour	900	lm	75	67,500
<u>Rubber Fenders:</u> Type D, applicable for frame dock and ships due to the smaller bottom width.	85	lm	20	1,700
<u>Floating Platform:</u> 60m x 12m, Landing Stage	720	m ²	600	432,000
<u>Water Games:</u>		LS	5,000	5,000
<u>Gaz Station:</u> 1 Gazoline - 1 Fuel Oil	2	LS	20,000	40,000
<u>Service Bollards:</u> 50mm Credit metered bollard with key-switch control 2 outlets for Electricity 2 outlets for Water Supply 2 Electric Meters (or Prepaid Card)	25	Nr	650	16,250
<u>Blinker:</u>	14	Nr	225	3,150
<u>Crane:</u>	1	Nr	18,000	18,000
<u>Guard Station:</u>	1	Nr	10,000	10,000
<u>Access Bridge:</u> Welded aluminium structure 6005 AT 5, Length 6 m	2	Nr	4,500	9,000
<u>Navigation Light:</u>	2	Nr	375	750
<u>Duct:</u> for Electricity and Water Installation within main Pontoons	200	lm	20	4,000
<u>Duct:</u> for Fire Protection Installation	150	lm	20	3,000
<u>Fire Outlet:</u> Illuminated Maxi Fire Hydrant Bollard	2	Nr	1,500	3,000
			Total	1,364,530

CAPITAL INVESTMENT COST (68 BOATS)				
Description	Quantity	Unit	Unit Rate in S	Amount in \$
<u>Pontoon:</u> Floating, Welded aluminium structure 6005 ATS; Live load 250 Kg/ m ² , Length 12 m; Width 2 m	10	Nr	9,000	90,000
<u>Pontoon:</u> Floating, Welded aluminium structure 6005 ATS; Live load 200 Kg/ m ² , Length 6 m; Width 1,5 m	46	Nr	3,300	151,800
<u>Piles:</u> Ø60 cm; h= 10m	20	Nr	600	12,000
<u>Anchoring:</u> Guiding rings Ø80 cm on pile, 1m over sea level	20	Nr	60	1,200
<u>Harbour Extension:</u> Concrete 60m x 10m	600	m ²	450	270,000
<u>Wave Breakers:</u>	80	lm	1,100	88,000
<u>Internal Roads:</u> (Including all Services) Average width 6.5 m	570	lm	140	79,800
<u>Parking:</u> For 100 cars	1350	m ²	50	67,500
<u>Restaurant:</u>	1200	m ²	200	240,000
<u>Cabinets:</u>	120	Nr	1,000	120,000
<u>Toilets:</u>	30	Nr	900	27,000
<u>Public Garden:</u>	700	m ²	30	21,000
<u>Rehabilitation:</u> Existing Harbour	900	lm	75	67,500
<u>Rubber Fenders:</u> Type D, applicable for frame dock and ships due to the smaller bottom width.	250	lm	20	5,000
<u>Floating Platform:</u> 60m x 12m, Landing Stage	720	m ²	600	432,000
<u>Water Games:</u>		LS	5,000	5,000
<u>Gaz Station:</u> 1 Gazoline - 1 Fuel Oil	2	LS	20,000	40,000
<u>Service Bollards:</u> 750mm Credit metered bollard with key-switch control 2 outlets for Electricity 2 outlets for Water Supply 2 Electric Meters (or Prepaid Card)	35	Nr	650	22,750
<u>Blinker:</u>	20	Nr	225	4,500
<u>Crane:</u>	1	Nr	18,000	18,000
<u>Guard Station:</u>	1	Nr	10,000	10,000
<u>Access Bridge:</u> Welded aluminium structure 6005 AT 5, Length 6 m	3	Nr	4,500	13,500
<u>Navigation Light:</u>	2	Nr	375	750
<u>Duct:</u> for Electricity and Water Installation within main Pontoons	250	lm	20	5,000
<u>Duct:</u> for Fire Protection Installation	200	lm	20	4,000
<u>Fire Outlet:</u> Illuminated Maxi Fire Hydrant Bollard	3	Nr	1,500	4,500
			Total	1,800,800

2. Questionnaire for field work
3. Summary of results per sector

