Application of an international standard pattern for financial and economical evaluation of the tourism services projects (case study Rijab- Dalahou City- Kermanshah Province)

Alireza Mahmoudi[*] and Masoud Mahdavi

Department of Geography, Science and Research Branch, Islamic Azad University, Tehran, Iran.
alireza.mahmoudi25@yahoo.com

Abstract

United Nations Industrial Development Organization (UNIDO) with designing and developing of the first version of Comfar software, an international economical and financial evaluation of standard model for assessing production and services plans and projects, and selecting optimal use of investment was established for Rijab area of Dalahou district in Iran. The software receives financial and economic data, analyzes them and calculates their economic levels and the possibility of the project conducting. Rijab area, in terms of its geographical location with unique climatic conditions, cultural buildings and monuments, offers itself as a great tourist attraction especially in the West of Country. Developing the region for tourism excellence is one of the objectives of the comprehensive development plan. Therefore, attention to tourism especially rural tourism in this region is essential. The requisite development strongly considers the residence construction in planning of tourism. Hotels are the first local accommodation that should be built with attractive prospects. For this, a financial and economic justification model has to be developed. In this paper, for making application of this universal model, first by using the library and field study methods, the tourist attractiveness of the region is identified. Then, according to the statistics of tourists' inflow to the region, the correct estimation of the hotel is obtained. Afterwards, necessary data for Comfar software such as investment size, location, funding, taxes, design revenues and costs and other information needed to construct a four-star hotel in the area are prepared and installed in two Comfar and Excel software. Finally, financial and economic indexes of the design are analyzed and evaluated for justification.

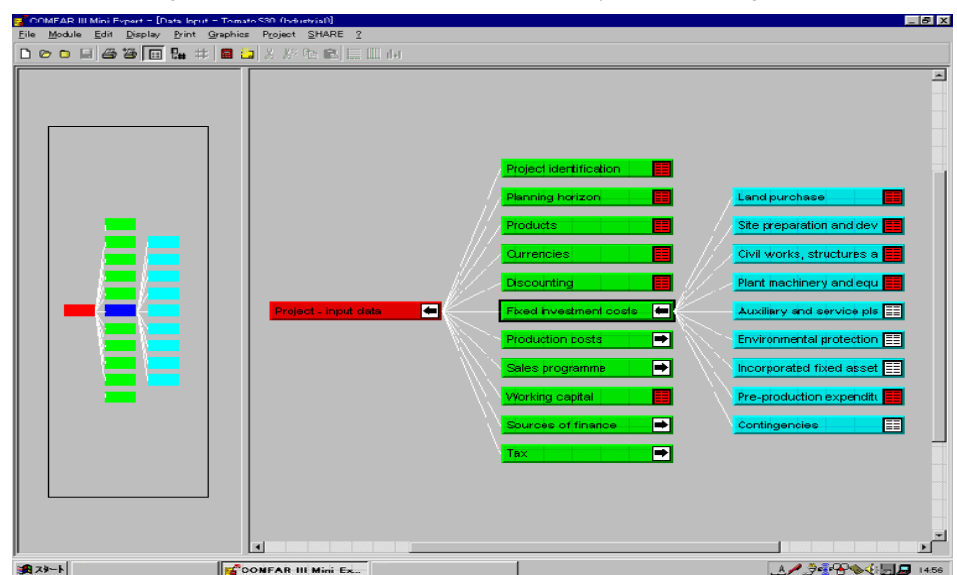**Keywords**: Tourism, rural development, sustainable development, economic indexes, hospitality industry, Iran

Introduction

When different ideas were proposed for investment and selection, the investors were seeking for different solutions to make the best decision. But existence of abundant parameters makes the computations so complicated by which decision maker didn't have necessary confidence in their results. On the other hand, different attitudes towards a special issue caused that the same results won't be obtained. In other words, about a plan, some computations make the plan look economical and some others refused it. Thus, standardization of definitions and computations becomes important to overcome the problem. But the main problem i.e. complexity of computational operations has been yet remained. For solving this problem, a committee was formed in United Nations Industrial Development Organization for simultaneous standardizing and computerizing of economic evaluation of plans and finally Comfar program was prepared and supplied in market.

Comfar (computer model for feasibility analysis and reporting) was prepared and codified by economic evaluation unit of UNIDO (United Nations Industrial Development Organization) in New York in 1979. In preparing this computer program, the experiences of more than 30 economic evaluation committees of different countries have been used and supplied to the market for the first time in 1983. Fig. 1 shows a sample window of Comfar software's input. The cost of preparation of this program amounts to 1.5 Million

Fig. 1. Window of Comfar software's input (www.unido.org/comfar)

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dollars and now more than 0.5 Million versions are in operation all over the world and in 15 languages. Also, more than 140 countries of the world use this software for evaluating manufacturing and service plans and projects and selection of optimal alternatives for investment (www.unido.org/comfar). This software is a valuable tool for analyzing investment projects and was officially introduced in Iran in 2003. This program has this capability to receive financial and economic raw data and analyze them based on necessary instructions and illustrate the information in the Table and graph form and finally complete the rate of being economical and possibility of performing projects (UNIDO, 2008).

Table 1. Number of tourists of Rijab region in 2009 with separation of goals of

Goal of trip	Business	Pilgrim	Visiting historical places	Visiting natural places	Cultural & art visiting	Total
No: of visitors	948	165,209	128,626	147,451	5331	447,565
Partial ratio	15%	6%	3%	4%	2%	-
Total users	142	9,913	3,859	5,898	107	19,918

Table 2. Demand of tourists to 4 star hotel of Rijab

Year	Prediction of number of passengers	Average time of guests' stay	Number of nights of guests' stay	Number of occupied rooms	Occupation % of room
2013	19,918	2,43	48,585	11,717	69,7%
2014	20,390	2,45	50,000	11,994	71,4%
2015	20,898	2,46	51,526	12,293	73,2%
2016	21,296	2,47	52,718	12,527	74,6%
2017	21,941	2,49	54,654	12,906	76,8%
2018	22,518	2,50	56,385	13,246	78,8%
2019	23,163	2,51	58,321	13,625	81,1%
2020	23,399	2,52	59,028	13,764	81,9%
2021	23,598	2,52	59,624	13,881	82,6%
2022	24,047	2,53	60,973	14,146	84,2%
2023	24,212	2,53	61,467	14,242	84,8%
2024	24,249	2,53	61,578	14,264	84,9%
Average growth %	2%	0%	2%	2%	2%

Statistical population

For estimating the percent of occupation of supposed 4 star hotel plan of Rijab, it's firstly necessary that enough information about number of passengers to the hotels of Kermanshah with domestic and foreign separation and also stay average of the guests need to be obtained. Based on the statistics of the past years during 1998 to 2009, the number of passengers to the hotels of Kermanshah has been increased from 85,683 to 250,302 and the average stay of domestic and foreign tourists has been 2 and 3 days, respectively. Also, based on the statistics of year of 2006, only one 4 star hotel was available in center of province. The number of moved passengers has been 18,002,755 of which 14,594,657 and 3,408,098 have traveled inside and outside the province, respectively (Geography book of Kermanshah, 2006).

In order to make an accurate estimate of the statistics of tourisms to 4 star hotel in Rijab, a uniform questionnaire was prepared in the beginning of the year of 2009 and provided for rural office of tourist attractive villages of the region. Based on the extracted statistics, the number of all clients to the region was about 447,565 within the year 2009 (Table 1). Based on these statistics, it is assumed that 15, 6, 3, 4 and 2 percent of passengers who have visited the studied region for the purpose of business, pilgrim, visiting historical, natural and cultural & art works, respectively in 2009 should select the location of the supposed hotel with annual average rate of 2.5 days for stay.

The number of resident passengers of hotel is equal to 19,918 in the first operation year (by assuming keeping the passengers fixed) and this number will reach to 24,249 with growth rate of 2% in twelfth operation year (Table 2).

Establishment of our desired hotel in centre of Rijab rural district in an area of about 2200 square meters would be made during 2 years. The 4 star hotel will have 46 rooms (22 Single, 18 Twin, 6 suites) in 6 stories and has facilities like permanent, seasonal restaurant and feast saloons and recreation and welfare facilities viz. pool, dry and steam sauna and Jacuzzi, body building and ping pong. In this plan, the space of -1 floor is marked for parking lot, kitchen, warehouse, service space and installments and floor will be used as lobby and restaurants and second floor as the pool and body building saloon and third to fifth floors as guest rooms and sixth floor as the feast saloon. All costs and incomes of 4 star hotel's plan has been estimated based on the existing principles and standards and raw data and information has been entered into Comfar software after compiling and computing and financial and economic indexes of the plan has been analyzed by using software output information. Meanwhile all output information of financial and economic indexes of Comfar software has been computed by using Excel software and the accuracy of information has been confirmed.

Location and characteristics of the region

Rijab rural district of Dalahou (Fig. 2 and 3) environs and with extent of 40 square kilometers is located in Western half of Kermanshah. This region has 15 villages and is located in latitude of 34 degrees and 26 minutes and longitude of 45 degrees and 55 minutes to 46 degrees and 5 minutes from Greenwich meridian. Geographical location of Rijab leads to Salas Babajani town from the North and to Dalahou town from the East and to Patagh rural district from the South and to Zahab desert and Iraq from the West. Based on the census of 2006, this rural district has 6700 populations which is the

Fig. 2. Location map of the region under consideration
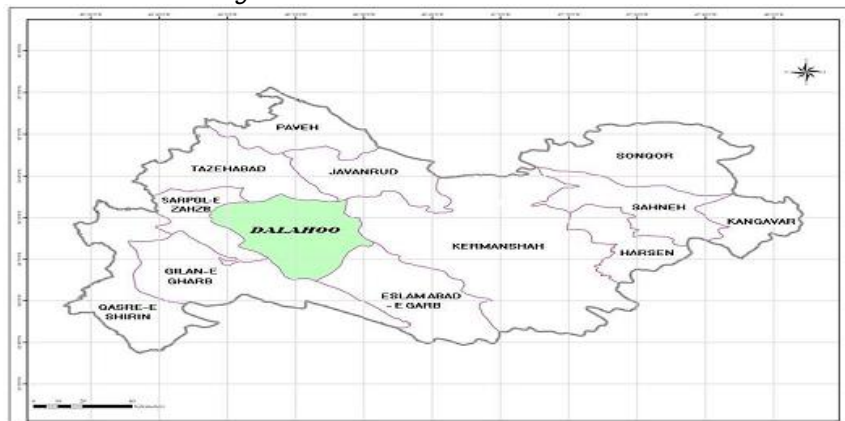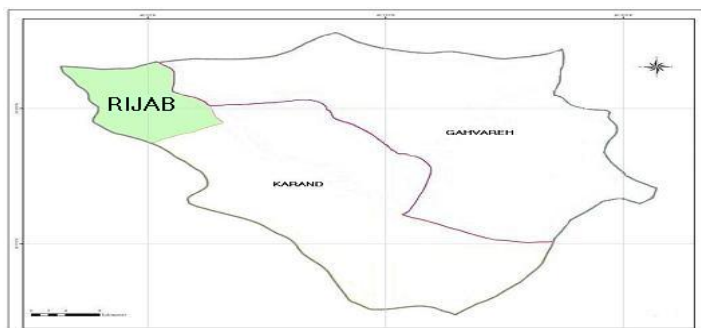in range of Iran and Kermanshah Province

Fig. 3. Map of Dalahou and situation of Rijab
rural district in map of this town

greatest village in terms of population of Banmazaran village (Mahmoudi, 2006).

Kermanshah by having climatic diversity, snowy mountains and summits, caves, waterlogged rivers and beautiful mirages has always been considered by tourists. More than half of the extent of province has been covered by high mountains. This province by having more than 600 monuments is one of the most spectacular regions of Iran. Dispersion of monuments and natural beautiful attractions is in such a manner that averagely there is a monument or paradise in each 15 to 20 kilometer. The existence of remains of living in cave era and then civilizations like Elamite, Lului, Sumerian and remains of local government or hierarchy of kings like Media, Achaemenian, the Parthia, Sassanid, Mongol, Tribalism, Safavid and Qajar dynasty in Kermanshah has distinguished old history of this region. (Geography book of Kermanshah, 2006).

Rijab region is unique in terms of natural conditions and environmental factors (Peroni, 2008), non uniformity, diverse natural features like mountains, valleys, rivers, waterways, medical, decorative herbs and gardens. The highest point of Rijab is 2540 meters and the lowest point is 500 meters from sea level. 46% of its area is located between heights of 520 to 1100 meters and 54% between 1100 to 2540 meters (Afshar Sistani, 1992).

In terms of multitude of monuments and their diversity, it can be said that it's unique in this province and it's worthwhile that group of researchers and archeologists scientifically research and explore for days and months around that region (Golzari, 1978). Locating Rijab in margin of Shahi road (this road has connected the capitals of ancient Iran, Tisfoun - Bable to Shoush and Takht-E Jamshid) and Patagh gate (western gate of Iran plateau) increases the desired and appropriate natural location which has multiplied its strategic importance (tourism comprehensive plan of Rijab region, 2003). As it's clear from the ancient history, Sassanid kings have been spending some times in Rijab in their royalty and political traveling between capitals (political transportation) and totally, all ancient works and buildings in Rijab indicate its residential and historical antiquity from the ancient periods up to now (Zendeh del, 2000).

Plan of income

The first step in analyzing economical feasibility of conducting any economic activity is the determination of its profitability. Accordingly, incomes and costs of plan and then justifiability of the plan will be firstly analyzed. In general, the main incomes which will be predicted to be obtained after performing plan considering kind and specifications of desired plans are:

The obtained income from selling room. Prediction of these incomes considering number and combination of rooms and percentage of estimated occupation in Table 2 and fixing the prices will be made. The first required index for computing income after index of percentage of occupation is price index. Therefore, rent of each room with separation of type of room will be firstly determined and then average weight of price of each room will be computed according to Table 3. The obtained income from rent of stay of passengers in 2013 (1st operation year):

Number of room (46) × percentage of occupation (69.78%) x average weight of price of each room for each passenger (1,483,074) × 365 = 17,375 Million Rials.

For estimating income of future years of plan, considering increase procedure of percentage of occupation and fixing rent rate of room based on fixed prices of year of 2013, some computations have been

Table 3. Cost of stay services of 4 star hotel of Rijab

Type of room	Number of rooms	Proportional ratio	Rate of room (Rial)	Average weight (Rial)
Single Room	22	47.74%	1,110,000	529,914
Twin Room	18	39.26%	1,600,000	628,160
Suite	6	13.00%	2,500,000	325,000
Total	46	100%	-	1,483,074

made (Table 5)

Table 4. Estimate of number of ceremonies held during operation period of plan

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of ceremonies	150	155	160	165	170	170	170	170	170	170	170	170

obtained income from laundry and … amount of 6% of total incomes of

Table 5. Incomes of 4star hotel's plan of Rijab during operation (Million Rials)

Year Description	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Room Income	17,375	17,787	18,231	18,578	19,141	19,644	20,207	20,413	20,586	20,979	21,122	21,154
Income of food, saloon	10,800	11,160	11,520	11,880	12,240	12,240	12,240	12,240	12,240	12,240	12,240	12,240
Income of food, beverage in permanent restaurant	3,332	3,379	3,430	3,470	3,534	3,592	3,656	3,680	3,700	3,745	3,761	3,765
Income of food, beverage in seasonal restaurant	1,340	1,340	1,340	1,340	1,340	1,340	1,340	1,340	1,340	1,340	1,340	1,340
Coffee shop income	348	350	352	353	356	358	361	362	362	364	365	365
Income of parking rent	515	515	515	515	515	515	515	515	515	515	515	515
Incomes on side	1,043	1,067	1,094	1,115	1,148	1,179	1,212	1,225	1,235	1,259	1,267	1,269
Total income	34,753	35,598	36,481	37,250	38,274	38,867	39,531	39,774	39,978	40,441	40,610	40,648

The obtained income from selling food, beverage, saloon and ceremony: with regard to considering the average operative capacity of saloon for 400 persons and prediction of number of ceremony in each year with estimate of menu rate has been computed 180,000 Rials. Also, for future years by using estimate of number of ceremony and keeping the prices fixed and operative capacity of saloon, the obtained income from selling food and beverage will be predicted and reflected in Table 4.

The obtained income from selling food and beverage in permanent restaurant: Considering the studied conclusions and estimate of number of passengers for one night stay in hotel, one meal and using entertainment services with rate of 100,000 Rials and also 40 guests out of hotel has been considered for 335 days (except Ramezan month). Accordingly, the predicted income in first operation year of this place is equal to:

{Number of serving of each meal (equal to passengers) + number of guests in 335 days except passengers of hotel} × rate of each serving = (19,918 + 13,400) × 100,000 = 3,332 Million Rials

Accordingly, the aforementioned income has been predicted for future years in Table 5.

The obtained income from selling food and beverage of seasonal restaurant of guests: This part of restaurant has been into consideration in a developed space for daily services and entertainment of 40 guests for 335 working days with menu rate of 100,000 Rials.

Coffee shop income: the obtained income from coffee shop sale by considering usage of 10% of passengers of hotel during one year and recreational services of coffee shop for 20 non-resident guests for 335 working days has been estimated with menu rate of 40,000 Rials in Table 5.

The obtained income from parking rent: Considering 365 working days with rate of 15,000 Rials and using 47 places 2 times a day which have been devised for parking, the income will be gained.

Income on side: Sum of income on side includes the obtained income from being operator in conversations, rooms have been estimated (Table 5) during 2013- 2024.

Plan of costs

The second action in establishing a new hotel is its financial predictions. Considering the predicted

Table 6. Estimate of project investment with separation of construction period (Million Rials)

description	Total construction phase	2011 Year	2012 Year
precinct and land improvement	50,000	22,850	27,150
municipality charges	7,000	2,800	4,200
machineries and facilities	14,250	5,700	8,550
side and service facilities	23,750	9,500	14,250
total fixed costs of investment	95,000	40,850	54,150

specifications for establishing the aforementioned hotel and considering all installment and equipment requirements which is necessary that this plan could be utilized considering the degree of hotel, estimate of cost is separately mentioned for each life years of the plan.

Plan investment fixed cost: It is assumed that in the fixed costs of plan's investment, the land will be freely given to the investor. The estimated amount for fixed investment of plan is 95,000 Million Rials which an amount of 40,850 Million Rials for the first year and 54,150 Million Rials have been estimated considering 2 years construction phases which its complete description is in Table 6. Also, 16 operational personnel are predicted in hotel with 82.5 Million Rials per capita as the personnel cost and amount of 833 Million Rials has been considered as the working capital.

Cost estimate of annual insurance: Insurances which have been now considered to be standard for hotels and common in Iran are:

Fire, lightning and explosion insurance: the basis of computing this kind of insurance based on the existing tariff is 0.00305% of all primary investment minus cost of buying land and municipality dues which have been computed as follows: (95,000-5,273) × 0.003% =269 Million Rials

Table 7. Operation costs of plan (Million Rials)

Year / Description	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Salary and Wage	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320
Insurance	270	270	270	270	270	270	270	270	270	270	270	270
Energy	463	470	471	471	474	472	474	472	472	474	473	472
Telecommunication	174	178	182	186	191	194	198	199	200	202	203	203
Food and beverage cost	5,062	5,193	5,325	5,454	5,590	5,610	5,631	5,639	5,645	5,660	5,666	5,667
Consuming supplies	455	466	478	488	501	509	518	521	524	530	532	532
Repair and maintenance	180	203	213	226	243	262	284	302	323	347	365	385
Advertising	695	712	730	745	765	777	791	795	800	809	812	813
Depreciation	10,403	9,589	8,875	8,247	7,694	4,356	3,925	3,543	3,203	2,902	2,632	2,392
Financial costs	5,594	5,594	5,594	5,594	5,594	0	0	0	0	0	0	0
Other costs	711	720	729	738	747	471	474	476	478	481	482	483
Total	25,327	24,715	24,187	23,739	23,389	14,241	13,885	13,537	13,235	12,995	12,755	12,537

Group life insurance: share of hotel for paying life insurance of personnel is 70,000 Rials in lieu of each person per year. Accordingly, group life insurance cost of personnel is: 70,000×16=1 Million Rials

Sum of annual insurance is equal to 270 Million Rials.

Energy cost estimate: Estimate of different costs of energy including electric energy cost, consuming water and fuel according to the necessary standards of plan has been predicted and inserted in Table 7.

Cost estimate of consuming raw material of restaurant: Raw material of restaurant includes consuming material for preparing breakfast, lunch and dinner which the cost of this material has been averagely considered equal to 32% of obtained income from selling food and beverage. Accordingly, the cost of raw material has been computed and inserted in Table 7 for all years of plan.

Cost estimate of consuming requirements: Cost estimate of consuming requirements has been made for the desired plan by studying the existing norm and doing adjustments proportionate to the percentage of predicted occupation of plan. These costs include cost of consuming requirements in the room, hygienic material, dishes and chinaware and sundry items which its results will be seen in Table 7.

Estimate of repairs and maintenance cost: For the purpose of keeping the building, installments, equipments and transportation vehicles, some annual costs according to the standard norms and under title of repair and maintenance cost has been predicted with logical growth rate for future years in Table 7.

Estimate of conversations' cost: The estimate of this cost has been made on the basis of 1% of total income of hotel's rooms.

Estimate of advertising cost: Considering the existing standards, residential places like economic institutions shall annually spend 1 to 3 percents of their total income for marketing matters for developing range of their own target market. Therefore, considering this issue and also performed studies regarding corresponding hotels, we considered 2 percents of total income of hotel for this purpose.

Estimate of amortization cost: Regarding estimate of this cost considering the amortization Tables, amortization rate for building, electrical installments, mechanical installments and equipment has been computed descending 7 percents, 15 percents, 15 percents and direct 5 year amortization respectively through Comfar software considering the separation of plan investment and total operation costs have been presented in Table 7.

Estimate of financial cost: Financial resources of plan includes 40% cash share and 60% remaining through bank facilities with 5 year payback period will be funded with rate of 11% which all financial costs of plan have been presented in Table 7. Also rate of income tax is 12.5%.

Unpredicted costs: After identifying cost items and their estimates for ensuring that all costs are considered, 4.76% of total estimated costs have been considered as unpredicted costs of plan which are inserted in Table 7.

Economic and financial indexes of plan

To make economic and financial assessment of plan, a series of indexes will be reviewed. Comfar and Excel software has been used for computing these indexes. The most important required indexes, computation manner and their general concepts are mentioned in economic and financial analysis of plan.

Net present value (NPV)

Net present value indicates difference of present value of all plan incomes (obtained from selling product or service) and costs of plan (all consumed resources) of its computation manner is described as follows:

If amount of A Rial with rate of i percents will be P Rial for n years:

$$P = A(1 + i)^n$$

In this case, present value of P Rial will be obtained after n years:

$$A = \frac{P}{(1 + i)^n}$$

Table 8. Summary of Comfar computations' results of

Project title: Date and time:	supposed 4 star hotel plan of Rijab		
Project classification:	New project		
Construction phase: Length: Production phase: Length:	01/01 - 02/12 2 years 03/01 - 14/12 12 years		
Accounting currency: Units: Local currency:	Million Rials (M_R) Absolute Million Rials (M_R)		

INVESTMENT COSTS	Total construction	Total production	Total investment
Total fixed investment costs	95,000.00	0.00	95,000.00
Total pre-production expenditures	8,808.35	0.00	8,808.35
Pre-production expenditures (net of interest)	*0.00*	*0.00*	*0.00*
Interest	*8,808.35*	*0.00*	*8,808.35*
Increase in net working capital	0.00	-833.63	-833.63
TOTAL INVESTMENT COSTS	103,808.35	-833.63	102,974.72

SOURCES OF FINANCE	Total construction	Total production	Total inflow
Total equity capital	46,462.00	0.00	46,462.00
Foreign	*0.00*	*0.00*	*0.00*
Local	*46,462.00*	*0.00*	*46,462.00*
Total long-term loans	57,968.92	0.00	57,968.92
Foreign	*0.00*	*0.00*	*0.00*
Local	*57,968.92*	*0.00*	*57,968.92*
Total short-term loans	0.00	0.00	0.00
Foreign	*0.00*	*0.00*	*0.00*
Local	*0.00*	*0.00*	*0.00*
Accounts payable	0.00	833.63	833.63
TOTAL SOURCES OF FINANCE	104,430.92	833.63	105,264.54

INCOME AND COSTS, OPERATIONS	First year 3	Reference year 3	Last year 14
SALES REVENUE	34,752.77	34,752.77	40,648.26
Factory costs	7,653.53	7,653.53	8,580.08
Administrative overhead costs	269.86	269.86	269.86
OPERATING COSTS	7,923.39	7,923.39	8,849.94
Depreciation	9,576.00	9,576.00	1,795.91
Financial costs	6,376.58	6,376.58	0.00
TOTAL PRODUCTION COSTS	23,875.97	23,875.97	10,645.85
Marketing costs	1,405.68	1,405.68	1,296.11
COSTS OF PRODUCTS	25,281.65	25,281.65	11,941.96
Interest on short-term deposits	0.00	0.00	0.00
GROSS PROFIT FROM OPERATIONS	9,471.12	9,471.12	28,706.30
Extraordinary income	0.00	0.00	0.00
Extraordinary loss	0.00	0.00	0.00
Depreciation allowances	0.00	0.00	0.00
GROSS PROFIT	9,471.12	9,471.12	28,706.30
Investment allowances	0.00	0.00	0.00
TAXABLE PROFIT	9,471.12	9,471.12	28,706.30
Income (corporate) tax	1,183.89	1,183.89	3,588.29

RATIOS		
Net Present Value of Total Capital Invested	at 17.00%	26,648.01
Internal rate of return on investment (IRR)	22.99%	
Modified IRR on investment	22.99%	
Net Present Value of Total Equity Capital Invested	at 17.00%	28,764.62
Internal rate of return on equity (IRRE)	26.51%	
Modified IRRE on equity	26.51%	
Net present values discounted to	01/12	

i is the discount rate. If *i*=0, then P=A and there's no difference between present and future value. If inflow and outflow in successive years is *Ej* and *Rj* for *n* years, net present value of incomes is:

$$NPV = (R. - E.) + \frac{R_1 - E_1}{(1+i)^1} + \frac{R_2 - E_2}{(1+i)^2} + \frac{R_3 - E_3}{(1+i)^3} + \cdots + \frac{R_n - E_n}{(1+i)^n} = \sum_{j=0}^{n} \frac{R_j - E_j}{(1+i)^j}$$

We've computed computations related to the net present value considering its formula which its result is identical with computations of Excel software which automatically compute this task.

$$NPV = (-40.850) + \frac{-54.150}{(1+17\%)^1} + \frac{25.006}{(1+17\%)^2} + \frac{24.586}{(1+17\%)^3} + \cdots + \frac{26.919}{(1+17\%)^{12}} + \cdots + \frac{69.770}{(1+17\%)^{13}} = 26.648$$

Net present value in 4 star hotel plan with primary investment is 95,000 Million Rials and net cash flow of the first year is -40,850 Million Rials which will be reached to 69,770 Million Rials in the last operation year (scrap value is added to the net cash flow of the last operation year) and by assuming 17% discount rate and 12 year life of plan is equal to 26,648 Million Rials which non negative net present value in 17% discount rate indicates the plan is economical (Table 8).

Net present value of equity capital (NPVE): This indicates difference of present value of equity capital incomes (received share profit) and equity capital costs (cash). Non negative net present value in discount rate equal to

the opportunity cost of investor indicates that the project is economical from the investor's point of view. Net present value of total capital of 4 star hotel's plan is positive and a figure equal to 28,765 Million Rials (Table 8).

Internal rate of return (IRR): The internal rate of return is a rate which allocated resources to the plan will make profit with that rate and is more used for analyzing economy of executive engineering (Akbari, 2003). For computing internal rate of return, net present value will be equal to 0 (NPV=0) and internal rate of return more than discount rate (opportunity cost of capital) indicate the plan is economical. In this relation:

$$IRR = -I + \frac{R}{(1+i)^1} + \frac{R}{(1+i)^2} + \frac{R}{(1+i)^3} + \cdots + \frac{R}{(1+i)^n}$$

Whatever the discount rate *i* is more, net present value of incomes are less and we see that net present value of incomes is equal to zero in lieu of $i = \bar{i}$ This *i* quantity is called internal profitability coefficient or internal rate of return of plan. Economic concept (IRR) is maximum interest or profit which the investor can pay for financing the plan because if he pays more, NPV will be negative and it causes loss. Internal rate of return of 4 star hotel's plan in Rijab is 22.99% (Fig. 4 and Table 8).

Internal rate of return on equity (IRRE): It indicates return of equity allocated to the plan through investors. From investor point of view, the received share profit will be considered as the benefits of investor and allocated equity to the plan as the investment cost. Internal rate of return on equity more than discount rate (opportunity cost of investor) indicates the plan is economical from the investor point of view. Internal rate of return of rights of share owners of 4 star hotel's plan is 26.51% (Table 8).

Normal payback period: It is the period which total performed investments will be returned by obtained incomes from the plan (without regard to their time value). In other words, capital payback period is one in which costs of plan is reimbursed with its net incomes which the capital will be amortized. For example, normal payback period with 100 Million Rial investment with annual net income of 20 Million Rial is 5 years. In this method, more payback period, better investment.

The advantage of this method is its simplicity and easiness for considering investment risk factor. For accepting or rejecting the plan, there's maximum *T* period. For example, farmers may only accept plans which their payback period is less than 5 years. In former

Fig. 4. Discounted cash flows by using Comfar Software

Soviet, the quantity of *T* was accepted to be 3 to 7 years according to the field of activity and 10 years for infrastructural plans like transportation, production and electricity conduction. Normal payback period is about 5 years and 10 months in 4 star hotel's plan.

Table 9. Sensitivity analysis of rate changes of room of plan

situation description in sensitivity analysis	IRR	IRRE	NPV	NPVE	PBP	PBPE	BEP
decrease of rate of room to 15%	20.62%	22.95%	15,798	17,915	6.21	11.19	23
decrease of rate of room to 10%	21.42%	24.14%	19,415	21,531	6.07	10.54	22
decrease of rate of room to 5%	22.21%	25.32%	23,031	25,148	5.94	9.96	22
selective option	22.99%	26.51%	26,648	28,765	5.81	9.5	21
increase of rate of room to 5%	23.77%	27.69%	30,265	32,381	5.69	9.07	20
increase of rate of room to 10%	24.53%	28.87%	33,881	35,998	5.58	8.68	20
increase of rate of room to 15%	25.29%	30.04%	37,498	39,615	5.48	8.33	19

Dynamic payback period: It is the period which total performed investments will be returned by obtained incomes from the plan (with regard to their time value). Defect of normal payback period is that it doesn't consider time factor. For resolving this defect, it's enough that net present value of incomes will be involved in computing payback period. By assuming that net income is fixed for $j = 1, ..., t$:

$$-I + \sum_{j=1}^{t} \frac{R}{(1+i)^j} = -I + \frac{R}{i}\left[1 - \left(\frac{1}{1+i}\right)^t\right]$$

$$-I + \frac{R}{i} - \frac{R}{i}\left(\frac{1}{1+i}\right)^t = \cdot$$

$$-I + \frac{R}{i} = \frac{R}{i}\left(\frac{1}{1+i}\right)^t$$

$$-I + \sum_{j=1}^{t} \frac{R}{(1+i)^j} = -I + \frac{R}{i}\left[1 - \left(\frac{1}{1+i}\right)^t\right]$$

$$-I + \frac{R}{i} - \frac{R}{i}\left(\frac{1}{1+i}\right)^t = \cdot$$

By dividing both sides of the above equation:

$$1 - \frac{Ii}{R} = \left(\frac{1}{1+i}\right)^t$$

And by considering that: $\log\left(1 - \frac{Ii}{R}\right) = t\log\left(\frac{1}{1+i}\right)$

$$t = \frac{\log\left(1 - \frac{Ii}{R}\right)}{\log\left(\frac{1}{1+i}\right)}$$

Dynamic payback period of plan is computed regarding the aforesaid formula and by using Comfar and Excel software which its period is 9 years and 6 months (Table 8).

Breakeven analysis: It is determiner of capacity of production in which sale income covers production costs. Production more than breakeven indicates locating in profit situation and less production being in loss situation. High breakeven indicates high risk of plan against unpredicted factors (Mostazafan Foundation of Islamic Revolution, 2007). Breakeven of this plan will be obtained by selling 21 rooms of total rooms.

Sensitivity analysis: It is a method for reviewing and evaluating approval of key parameters on financial indexes of plan and reviews risk of performing plan in different states (consulting engineers of Nazm Pouyan management, 2006) and somehow is kind of review toward economic evaluation. This question can be asked that the primary estimates can well indicate conditions which will be occurred in the future after performing project (Oskoonezhad, 2006). Key and affecting variables on rate of profitability of this plan are: changes in rate of room, percentage of occupation which rate of analysis of economic and financial indexes are shown by increasing and decreasing these variables in Tables 9 and 10.

Conclusion

One way of gaining national income and importing foreign currency is to create residential and recreational facilities beside tourism center and attractions. Therefore, creating suitable facilities for domestic and foreign tourists can have a significant

Table 10. Sensitivity analysis of changes of average percent of occupation

situation description in sensitivity analysis	IRR	IRRE	NPV	NPVE	PBP	PBPE	BEP
decrease of percentage of occupation to 15%	20.64%	22.98%	15,905	18,021	6.21	11.17	22
decrease of percentage of occupation to 10%	21.50%	24.26%	19,723	21,840	6.05	10.48	22
decrease of percentage of occupation to 5%	22.90%	26.36%	26,292	28,409	5.83	9.55	21
selective option	22.99%	26.51%	26,648	28,765	5.81	9.5	21
increase of percentage of occupation to 5%	23.76%	27.68%	30,229	32,346	5.69	9.07	21
increase of percentage of occupation to 10%	24.52%	28.85%	33,810	35,927	5.58	8.69	20
increase of percentage of occupation to 15%	25.27%	30.01%	37,391	39,508	5.48	8.34	20

role in the country's economic progress. Our ancients have presented valuable heritage for us. Capital which has antiquity up to Iranian history and is easily available for us as a valuable basis for investing in hospitality industry. In this research, we able to identify and estimate primary investment and total operation costs and predict incomes of this plan and also did computations by using Comfar and Excel software, results of following economic indexes have been obtained in order to establish 4 star hotel in Rijab region:

- In computing net present value of plan (NPV) by assuming 17% discount rate, three states will be occurred. In the first state (NPV) < 0, it means that present value of costs is more than present value of incomes and in other words, net present value of plan is negative and project is non economical. In the second state (NPV) > 0, it means that present value of costs is less than present value of incomes and the project is economical and in the third state (NPV) = 0, it means that minimum attracting rate is provided for investment and consequently, the project is economical. In economic comparison of some projects by present value, the project is the most economical one which has more net present value. In the present plan, the second state has been occurred and net present value of total plan and share of investor is 26,648 and 28,765 Million Rials, respectively.

- During operation period, internal rate of return of plan (IRR) and internal rate of return on equity is 22.99% and 26.51%, respectively. Thus, the plan has economic justification as both rates are great in comparison with rate of bank interest (11%).

- Payback period of plan is an approximate method for economic comparison of projects. The analyzer is seeking for a period which primary capital can be reimbursed by annual incomes by using this method. Normal and dynamic payback period of plan is about 6 and 10 years during operation period, respectively.

- Break even review of cost and income of plan indicates that by averagely selling 21 out of 46 rooms or in other words, selling 45% of rooms, the plan will be reached to covering point of costs without margin of positive profit which indicates justifiability of plan.

- The performed sensitivity analysis in two affecting parameters in hospitability includes variable of average percent of hotel's occupation and average of sales price of a room by considering increase and decrease changes in 5, 10 and 15% rates and its effect on economic evaluation indexes indicate that net present value of plan (NPV) is positive and internal rate of return more than discount rate (17%) has been considered which performed computations and fluctuations

specially, decrease changes don't negatively affect on performing plan and it has economic justification.

All economic and financial indexes of plan indicate justifiability of plan of establishing 4 star hotel in the region under consideration. It will also promote subsequent employment opportunities, income, cultural exchanges, preserving cultural values, agricultural development and morale reinforcement of innovation and handicraft produce. Such developments can also mitigate many problems especially rural area which mainly encounter with risk of immigration, evacuation and stagnation and unemployment. Hospitality industry can nourish the human talents and rural skill to put it natural and practical.

For future development the following are suggested: 1) Use of this model for financial and economical evaluation of other service projects such as construction of telecab, park and game centre, cinema, Sleigh, and construction projects. 2) With suitable modifications, this model can be employed in all activities related to planning, execution, and termination of projects.

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