An Environmental and Social Impact Assessment Model (ESIAM) for oil refinery: a case study of TEHRAN oil refinery

Mohammad Rezaie Narimisa

Department of civil & structural engineering, University Kebangsaan Malaysia, 43600, Bangi, Malaysia
mnarimisa@gmail.com

Abstract: The Environmental Impact Assessment (EIA) of an oil refinery is based on the evaluation of environmental impacts reports, field study assessments, environmental monitoring and decision-making process. The objective of the study is to develop an appropriate environmental impact assessment software for specific application in oil refineries in Iran mainly to reduce the negative effects of oil refineries, and speeding up the process of providing EIA of oil refineries. With this software which presents a new model that modifies the Environmental Risk Assessment method and Leopold method and combining these two methods together in the software that named OREIA (Oil Refinery Environmental Impact Assessment). Thus, the methods used for EIA of oil refineries are upgraded according to the operational needs with monitoring of the environment in various phases of environmental impact and environmental monitoring. The software includes details of environmental parameters and items for design, construction and operation parts of oil refinery. It will give appropriate insights to the managers and experts in the Iranian Oil Ministry especially Iranian Oil Refineries. Evaluation and verification on the accuracy and validity of the software were done based on a case study of Tehran Oil Refinery. The input and output of each process during evaluation of this software provide a complete EIA for Tehran Oil Refinery with an acceptable environment status.
[Mohammad Rezaie Narimisa. **An Environmental and Social Impact Assessment Model (ESIAM) for oil refinery: a case study of TEHRAN oil refinery.** *Life Sci J* 2013;10(7s):633-638] (ISSN:1097-8135). http://www.lifesciencesite.com. 100

Keywords: Oil; human communities; ecosystems; social impact assessment; Tehran oil refinery

1. Introduction

The concept of social learning described and effort to show how communities of people with both diverse and common interests can reach agreement on collective action to solve a shared problem (Webler T., & Kastenholz H., & Renn ,1995). The reality is that with the increasing need for oil exploration and industrial world to its position the largest and most important source of energy resources and raw polymers and plastics, social and economic direction in many countries and Iran, the general changed (Ahmadi, 2008). Social impact assessment is defined as the process of identifying the future consequences of a current or proposed action which are related to individuals, organizations and social macro systems (Becker, 2001). New oil to world markets, face, structure and function of all institutions of political, social, economic and even cultural country greatly affect. Samples of this nature and identity of its affiliated institutions have oil and if not, all relations and equations of political, economic and social changes in countries were emerged like Iran's good and important developments (Behzadie, 2003). The many categories, dimensions and interactions of risks have led to concerns for multiple and cumulative risks (Benighaus Ch., & Hildén M., & Assmuth T, 2009). Function of the oil change history of Iran and the country's economic direction in recent centuries, including strategic issues in economic and social analysis of counts (Davarie, 2002). By identifying potential impacts in advance of large project, agencies and individuals, can make better decisions about which interventions should be undertaken, and how (He D., & Braun Y., & Tilt B, 2009). The reality is that with the growing need for oil exploration and industrial world to its position the largest and most important source of energy resources and raw polymers and plastics, social and economic direction in many countries and Iran, completely changed. Potentially, guidelines and principles can be directed to many different groups, each of whom has different interests (Vanclay, 2006). All relations and equations of political, economic, social and countries like Iran has undergone major changes and developments were emerged (Ehsanie, 2001). A group of oil experts believe that the main cause of lack of development in various dimensions, and all our psychological problems due to connection to the source of enormous wealth is God-given (Farhadie, 2004). So, if Iran's oil situation had not improved and perhaps better than their current situation. Although the situation in Iran without oil and certainly can not stop drawing and be files, but not from the negative effects of oil were neglected in various social fields (Ghasemie, 2001). The following major functions of oil will be in various

institutions of the social groups of country. The largest negative effect of oil refinery in Iran's social groups, covering social and cultural weaknesses and inertia came to Iran (Javaherie M., 2002). Although the foundations in terms of production technology and business environment is not among the rich and developed countries, but the oil fortune without trouble and tribulation has been given community, country has row in developing countries with relatively high per capita income (Kamali, 2007). Brush oil and poor social groups of patients from the comments kept secret because of their financial obligations easily with oil supply has never felt the need and have no shortage of brains and hands - and their efforts to rush formation in the economy forced (Lavasanie, 1999). Although Iran is rich in terms of per capita consumption but produced a decisive great (especially for luxury goods) can be considered. Oil revenues from the anti-productivity culture in the dominant institutions and organizations promoting the country have replaced the traditional culture and religious work in the community are satisfied; samples already in many developed countries, consumption patterns more balanced pattern of consumption in our country's agenda have. The major disadvantages of deep social and economic culture, somehow clear the injection of oil revenues in the system forthright national economy goes, and unfortunately lose color elements such as punctuality, activist, working order and have led to the conscience (Paravar, 2006). Fundamental elements would be impossible which are definitely and certainly without any kind of development. High government subsidies in the energy sector through the financing of oil are high and fuel consumption in the country, the main reason for the growing energy and environmental crisis in Iran are considered. In the country of 70 million more than the countries with population above 300 million people will use gas or gasoline and the destruction process and renewal of natural resources, erosion, loss of forests and rangelands, drought, reduced rainfall. The country has faced serious crises. Iran enjoys enormous resources due to oil, fuels and energy carrier's never reasonable price and have not and this has caused to other natural resources as national wealth and sustainable development and balancing factor in the long term is not significant (Savadkouhie, 2002). This problem, energy and environmental crisis in Iran have created unfortunately, due to open despite oil revenues, not such a critical sense. Though it seems negative functions mismanagement of oil revenues in Iran has expanded its interests, but this should not hide the interests and benefits of oil and keep covered (Ramazanie, 2003). Oil, among the main three components of power in international relations and equations are considered (Zoljalalian, 2001). Considering the critical dependence on the public, especially the industrial countries and countries in the world and powerful, energy resources, and all governments combined with behavioral compliance with caution and are oil-rich countries and this particular weight in the political negotiations and discussions to give them. Oil the other hand, an important factor of national solidarity and integration can be considered (Tavakolie, 2007). Because all the benefits of oil sales of government is therefore to strengthen the base of central government in Iran has been led (Naserzadeh T., 2001). It should be noted, Iran's extensive national and religious and ethnic variety and enjoyment of a strong central government if national unity is strength. Oil revenue, strong and important factor has in strengthening the central government and key functional preservation of territorial integrity (Mohamamadian, 2005).

2. Materials and Methods

Due to achieve the complete results two methods have been considered for this project:

1-Combination of Leopold and environmental risk assessment method

For this project the data obtained by mixing the Leopold matrix and environmental risk assessment by using the special software under Java system. The assessment model for oil refinery social impact assessment and analysis of the results were established based on the interactions matrixes in which the interactions of two stages of oil refinery construction and operating activities on all environmental and social parameters were studied under the three general categories of social management, land usage and future development plans and its socio-economic effects and social and cultural aspects integrating all involved agents. All construction and operating stages' elements and sociological parameters were determined given the operational need. In order to evaluate the interactions between social parameters and both construction and exploitation operations, special tables designed for evaluation of interactions for taking conclusion and final summing up. For evaluating the environmental and social some special items has been selected that including: severity impact (negligible, moderate, critical, catastrophic), probability impact (rare, seldom, occasional, likely, continuous), importance impact (short term, long term, reversible, irreversible, indirect, direct, cumulative), impact type (positive, negative, no impact), significant impact including (0-3, Green, no impact-low, 4-6, Yellow, minor impact-moderate, 7-10, Orange, major impact, 10>, Red, critical major impact).Special software under SQL server program designed getting accurate results of

social and environmental impact assessment of Tehran oil refinery as selected for case study. After calculations results were provide as a graph. The graph shows the final evaluation for this case study. The social parameters have been considered in this method are: population, immigration, expertness, again settlement, cost and income, employment and joblessness, real estate's price increase, agriculture, mine and industry, services, transportation, traffic, welfare, educational services, water usages, unneeded repulse, backwater repulse, leisure time, security and immunity, lands ushering, future development designs.

2- The 3S Methodology of Validation

The Expert Choice 2000 Team version 10.1 software, which performs AHP technique was used to carry out the calculation of criteria and indices weights for Tehran oil refinery. The ELECTRE TRI version 2.0a software was employed to classify indicators into validation categories of Tehran oil refinery. The weights of the lowest level criteria were obtained by incorporating participants' judgments into the AHP technique of Tehran oil refinery.

The proposed methodology of validation verifies the suitability of the indicators in three stages: self-validation, scientific validation, social validation. Since the three validation stages are complementary, the validation process (its activities and its assessment criteria) is similar for all three stages. The contents of indicator reports are in Table 1.

Table 1: Contents of indicator report

Indicator	Name of considered indicator
Aspect	Name of environmental and social aspect
Description	Definition of indicator and its characteristics
Justification	Discussion of indicator's (meaning, accuracy and sensitivity, relevancy
Sources	Name of places, files, documents
Additional data	Other information

Definition of indicators: reports

It is base on the construction and operational reports of Tehran oil refinery during this project. These reports will be providing, edited and complete with a team work. These reports are including technical reports of both phase's construction and operation of oil refinery.

Validation criteria

In this step validation for two phases (construction and operation) has been considered for project area. This validation developed for significant results as (construction, operation and utilities).

Indicator evaluation

In this step evaluation of construction and operational indicators has been developed for management plan of two these phases. The Delphi technique has been chose for this project because the experiences about environmental studies showed that Delphi is useful for these reasons: clearly results of socio-environmental combination and guarantees the privacy of all the evaluators (Cloquell-Ballester V.G., Cloquell-Ballester V.A., Monterde-Dıaz R., Santamarina-Siurana M.C, 2006).

The complete assessment of indicators is performed in two phases. First, the lowest level criteria are aggregated into three main indices two phase of Tehran oil refinery construction and operation:

Conceptual coherence index (Ic)
Operational coherence index (Io)
Utility index (Iu).

The indices are obtained via the weighted sum technique from the expression below:

$$I_i = \sum \omega_{i,j}\ \mu_{i,j}$$

In this formula:
i=first level criterion
j=lowest level criterion

$$I_j^{AEE} = \frac{P_j - D_j}{G_j}\left(1 - \lambda_j\right)$$

In this formula:
I_j^{AEE}=availability of electric energy of project area "*j*";
Pj =production of electric energy of project area "*j*";
D_j=demand of electric energy of project area "*j*";
G_j=gross added value for project area "*j*";
λ_j=Annual failure rate of power supply in project area "*j*"
project area "*j*"=location alternative
Availability of transport infrastructures (I^{ATI})

$$I^{ATI} = 0.55A_{road,i}K_{road,j} + 0.20A_{port,i}K_{port,j} + 0.15A_{rail,i}K_{rail,j} + 0.10A_{air,i}K_{air,j}$$

In this formula:
I^{ATI} =availability of transport infrastructures in location "*i*";
$A_{road,port,rail,air(i)}$ = ordinal scale [0,9] measuring the accessibility from location "*i*" (in project area "*j*") to the respective transport infrastructures (road, port, rail, air);

$K_{road,port,rail,air(j)}$=characteristic of project area "*j*" for the different transport infrastructures;
K_{road}= weighed sum of: major roads length, minor roads length, total load capacity of authorised vehicles. (All data is normalized by the extension of project area"*j*");
K_{port} =weighed sum of: total goods traffic at harbour and products and services used by port operators. (All data is normalized by the extension of project area"*j*");
K_{rail} =weighed sum of: length of double-track electrified railway lines, length of single-track electrified railway lines, and length of non-electrified railway lines. (All data is normalized by the extension of project area "*j*");
K_{air} =weighed sum of: total goods traffic, total passenger traffic. (All data is normalized by the population of project area "*j*");
Availability of communication media I^{ACM}

$$I_i^{ACM} = 0.55 A_{e-net,i}K_{e-net,j} + 0.20A_{phone,i}K_{phone,j} + 0.15A_{postal,i}K_{postal,j} + 0.10A_{telegph,i}K_{telegph,j}$$

In this formula:
I_i^{ACM} =availability of communication media in location"*i*";
$A_{e-net,phone,postal,telegph(i)}$=ordinal scale [0,9] measuring the accessibility from location
$K_{e-net,phone,postal,telegph(i)}$=ordinal scale [0,9] measuring the accessibility from location (in project area "*j*") to the respective communication media (internet, telephone, postal, telegraph);
K_{e-net} =weighed sum of: internet connections, internet suppliers, e-commerce companies, ADSL lines, RDSI lines.
K_{phone} =weighed sum of: telephone lines, mobile telephone lines.
K_{postal} =weighed sum of: ordinary deliveries, urgent deliveries, parcel deliveries, number of postal orders.
$K_{telegph}$ =weighed sum of: domestic telegraphic deliveries, international telegraphic deliveries.
Working climate I^{WC}

$$I^{WC} = 0.30 \frac{G_j^*}{G_{max}^*} + 0.30\left(1 - \frac{U_i}{E_j}\right) + 0.20\left(1 - \frac{Ab_j}{WD_j}\right) + 0.20\left(1 - \frac{S_{5,j}}{WD_{5,j}}\right)$$

In this formula:
I^{WC}=working climate in project area "*j*";
G_j^*=gross added value per capita in project area "*j*";
G_{max}^*=maximum gross added value per capita for all the considered of project area;
U_i=average number of unemployed people in the last year in project area "*j*";
E_j=average number of employed people in the last year in project area "*j*";
Ab_j= total working days lost because of absenteeism in the last year in project area "*j*";
WD_j=total working days in the last year in project area "*j*";
$S_{5,j}$= total working days lost because of strikes in the last 5 years in project area "*j*";
$WD_{5,j}$=Total working days in the last 5 years in project area "*j*"

In a second phase, it will be proceeded to aggregate the results of the three previously calculated indices for two phases of Tehran oil refinery construction and operation:
(a) Classifying the evaluated indicators into different groups according to the level of validation.
(b) Balance among the proposed indices for two phases of Tehran oil refinery when validation result is inconsistent
(c) Resolve the exact boundary problem during the evaluation

Discussion of evaluation

Potential participation validation results are requirement tools for Delphi evaluation process. These items are in the Table 2

Table 2: Percentage of participation

	Participants	Candidates	%
Scientific validation	18	25	93.12
Social validation	6	42	32.53

Different candidates were contacted base on the 100% researchers for both of scientific validation and social validations for two phases of Tehran oil refinery are available in Table 3.

Table 3: Participants and social validation

Area	Candidates	Participants	%
Administration	9	0	0
None profit associations	31	3	11.23
Business sector	7	2	53.21
NGO's	3	3	100
Consultancy firms	4	4	100
Total	54	12	25.43

3. Result and discussion

Results are going in the two parts

First method (Leopold matrix, environmental risk assessment with Java system; as the Fig 1 shows on the base of the information gathered in the field of social and environmental features within the project, review and understanding of the environmental, economic, social and cultural features of the project area affected, prevention of negative social and environmental destruction through the possible effects of control project. Construction of oil refinery in Tehran province makes jobs in the way of direct and indirect. The opinions of local people and authorities of all the statistics authorities and regional authorities, before entering the industry rates of social pathologies, including drug, theft and prostitution was low, at least in social insecurity may have been, an appropriate level of social contact between people was established and goods price inflation in the main requirement is an acceptable level. By using this software and evaluating the results the special graph will give in Fig 1:

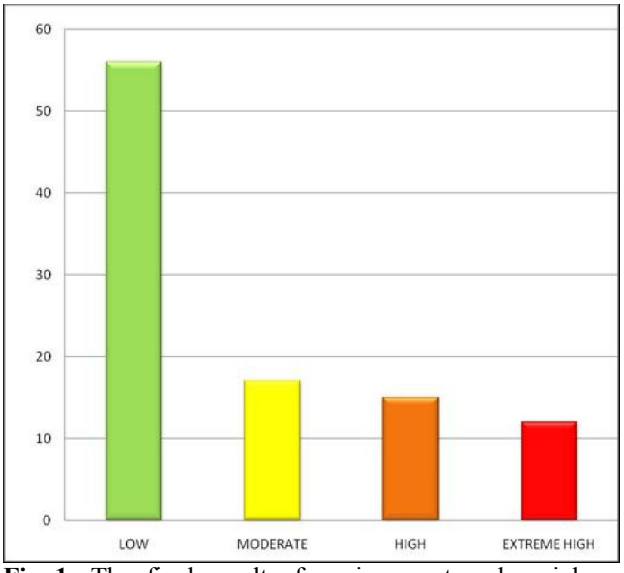

Fig 1: The final result of environment and social action plan

The discussion of the figure is follow in the Table 4:

Table 4: The results of first method

Effects	Description
Low	participants are strongly agree with the oil refinery with consideration of all effects, but they need at least solution professional procedures for environmental and social problem for both phase; construction and operation in project area
Moderate	participants are agree with the oil refinery but more consideration of bad effects on the environment and social factors, they instead on seeing the positive action base on the social and environmental conditions in the project area, they need to more involve with the local responsible persons
High	participants are disagree with the oil refinery but they think the problems can solve in future, environmental and social factors betting damage but the man items is give the solution procedures for each part of damages in project area, they need they need to more involve with the national responsible persons
Extremely high	participants are strongly disagree with the oil refinery because the social problems are growing up and they have long time effects on the social relations, problems cannot solve and in future they will have more problems of environmental and social factors in project area, they do not agree for talking about the solution ways with governmental responsible negotiate team

Second method

For indicator evaluation the mean of individual evaluations (μ) is a measure of group evaluation tendency and the standard deviation (σ) is a measure of group evaluation dispersion (see table 5).

Part one of the results form lowest level criteria by study and determining of three indicates weight by AHP method.

Table 5 Second method

	Weight	Scientific validation of the indicators							
Discussion		AEE		ACM		ATI		WC	
		μ	σ	μ	σ	μ	σ	μ	σ
Construction phase									
Definition	0.44	6.37	0.85	6.77	0.72	6.27	0.85	6.50	0.87
Relevance	0.41	6.10	0.77	6.57	0.87	6.20	0.95	6.60	0.72
Interpretation/meaning	0.46	6.10	0.77	5.93	0.90	6.29	0.89	6.60	0.97
Operation phase									
Formulation	0.35	6.00	0.95	6.17	0.97	6.21	0.85	6.40	0.75
Data and units	0.31	6.19	0.82	6.56	0.60	6.29	0.88	6.00	0.92
Measuring method	0.37	7.00	0.10	6.56	0.60	6.38	0.60	6.50	0.64
Sensitivity accuracy	0.37	6.45	0.97	6.10	0.75	6.10	0.80	6.44	0.66
Utility									
Indicator reliability	0.40	5.83	0.80	6.10	0.87	6.10	0.75	6.60	0.80
Sources reliability	0.42	6.68	0.75	6.43	0.87	6.77	0.89	6.80	0.73
Availability/applicability	0.42	6.20	0.91	6.77	0.73	6.77	0.73	6.60	0.73
Security information	0.19	6.55	0.58	6.07	0.50	6.77	0.73	6.60	0.73
Cost information	0.21	6.64	0.78	6.34	0.73	6.45	0.81	6.84	0.73
Indices									
Construction phase	53%	6.16		6.48		6.46		6.56	
Operation phase	67%	6.59		6.46		6.44		6.21	
Utility	46%	6.48		6.22		6.42		6.63	

Table 6 Results of scientific validation form oil refinery

	Weight	Scientific validation of the indicators							
Discussion		AEE		ACM		ATI		WC	
		μ	σ	μ	σ	μ	σ	μ	σ
Construction phase									
Definition	0.44	6.80	0.63	6.33	0.31	6.86	0.71	6.34	0.51
Relevance	0.41	6.30	0.24	6.43	0.61	6.60	0.76	6.41	0.41
Interpretation/meaning	0.46	6.80	0.33	5.19	0.73	6.52	0.74	6.36	0.84
Operation phase									
Formulation	0.35	6.10	0.62	6.32	0.73	6.63	0.40	6.21	0.41
Data and units	0.31	6.10	0.62	6.43	0.43	6.32	0.83	6.10	0.84
Measuring method	0.37	9.00	0.10	6.70	0.40	6.71	0.77	6.25	0.91
Sensitivity accuracy	0.37	6.70	0.33	6.37	0.35	6.32	0.91	6.32	0.36
Utility									
Indicator reliability	0.40	6.35	0.62	6.31	0.51	6.27	0.64	6.32	0.74
Sources reliability	0.42	7.23	0.10	6.74	0.42	6.10	0.32	6.70	0.68
Availability/applicability	0.42	6.45	0.74	6.44	0.33	6.27	0.51	6.32	0.53
Security information	0.19	6.80	0.32	6.10	0.10	6.60	0.87	6.70	0.31
Cost information	0.21	6.40	0.63	6.70	0.45	6.37	0.48	6.43	0.87
Indices									
Construction phase	51%	6.52		6.32		6.43		6.32	
Operation phase	34%	6.42		6.72		6.55		6.28	
Utility	84%	6.60		6.32		6.72		6.52	

AEE: availability of electric energy.
ACM: availability of communication media.
ATI: availability of transport infrastructures.
WC: working climate.

For calculation of indices the necessity is weighted sum of criteria for comprised of indices for two phase of Tehran oil refinery the 3S Methodology. By these calculations the result will get from social and scientific parts from two phases of Tehran oil refinery (construction and operation in the Table 6.

Results of the social validation for Tehran oil refinery

AEE: availability of electric energy.
ACM: availability of communication media.
ATI: availability of transport infrastructures.
WC: working climate.

Table 7: Scientific validation (aggregation of indices)

	Ic	*Io*	*Iu*	Weighted sum	Category
	0.53	0.62	0.52		
AEE	6.23	6.42	6.32	6.33	2nd (brief review)
ACM	6.28	6.28	6.22	6.26	2nd (brief review)
ATI	6.27	6.31	6.63	6.41	1st (validated)
WC	6.42	6.22	6.67	6.47	1st (validated)

Table 8: Social validation (aggregation of indices)

	Ic	*Io*	*Iu*	Weighted sum	Category
	0.42	0.25	0.62		
AEE	6.18	6.31	6.17	6.22	2nd (brief review)
ACM	6.51	6.22	6.41	6.38	2nd (brief review)
ATI	6.31	6.23	6.45	6.33	2nd (brief review)
WC	6.23	6.19	6.61	6.35	2nd (brief review)

Table 9: Scientific validation (fuzzy weighted) for sensitivity of the results

δ	Category		
	0.46	0.55	0.2
AEE	1st (validated)	2nd (brief review)	2nd (brief review)
ACM	1st (validated)	2nd (brief review)	2nd (brief review)
ATI	1st (validated)	2nd (brief review)	2nd (brief review)
WC	1st (validated)	2nd (brief review)	2nd (brief review)

Table 10: Social validation (fuzzy weighted) for sensitivity of the results

δ	Category		
	0.46	0.55	0.2
AEE	1st (validated)	2nd (brief review)	2nd (brief review)
ACM	1st (validated)	2nd (brief review)	1st (validated)
ATI	1st (validated)	2nd (brief review)	1st (validated)
WC	1st (validated)	1st (validated)	2nd (brief review)

Table 11: Scientific validation for Tehran oil refinery

	Assumption 1		Assumption 2		Assumption 3	
	Ic; Io; Iu		*Ic; Io; Iu*		*Ic; Io; Iu*	
	p q		p q		p q	
	0 0.2		0.6; 0.5; 0.7 0.2		0.52 0.4	
AEE	1st validated		2nd brief revision		1st validated	
ACM	1st validated		2nd brief revision		2nd brief revision	
ATI	1st validated		2nd brief revision		2nd brief revision	
WC	1st validated		2nd brief revision		2nd brief revision	

Table 12: Definition of unbalanced alternatives for Tehran oil refinery

	Ic	*Io*	*Iu*	Weighted sum		Electre TRI
	45	50	35	Total	Category	Category
AEE	4.5	7	4.5	5.75	2nd brief revision	2nd brief revision
ACM	6.5	5	6.5	5.80	3rd thorough revision	2nd brief revision
ATI	6.5	4.5	6.5	5.60	3rd thorough revision	2nd brief revision
WC	7	6.2	4	5.73	2nd brief revision	2nd brief revision

4. Discussion

For the first method; Leopold matrix modified then by using the Environmental Risk Assessment method (ERA) with its basic numerical arrangement tried to give the update method. In Iran most of Environmental Impact Assessment (EIA) just bases on the environmental assessment and most of the time the EIA reports based on the paper works. In this case by using EIA and ERA all indicators have been seen in the process of the EIA. The computer base work is necessary for EIA works. By mixing the three items EIA, ERA and computer programming all environmental parameters, social factors, economical factors, oil refinery indicators and future view for

extending the EIA of oil refinery with any changes in those items are available. So this method can get update by gives any change to the software. It this case a wide range of all parts of EIA and ERA can be seen in the oil refinery programming for construction, operation and future changes.

For second method; by 52 work days to get the results from the 3DMethodology due to the requirements and other items needed the process of the study was completed. The social validation is the most important part in this study for final qualification in the project area. The participation of all ceases was complete but for the first time they had some problem to cooperate. After discussion about the method they cooperate completely. In this case participants have been put on the social group for better judgment, qualification the results and final discussion. The results from the integration of the Scientific and the Social stages indices by are shown in Tables 11 and 12 for Tehran oil refinery.

The implication is therefore that even where an analysis of distributional patterns is not controversial methodologically i.e. the evidence itself is not challenged, this does not mean that conflict will not still materialize around how this evidence is interpreted and evaluated (Walker, 2010). For a building to perform best according to the EcoEffect assessment, it has to have a higher indoor environment quality as experienced by the occupants and a lower environmental impact (Assefa G., & Glaumann M., & Malmqvist T., & Kindembe B., & Hult M., Myhr U., Eriksson O., 2007). Successful SIA within the regulatory framework of EIA processes triggered

by formal development approvals may well rest on a foundation of baseline data collected through nonformal community studies and locally based ongoing monitoring of political, economic, biophysical, socio-cultural, and psychological conditions and changes (Walker J.L., & Mitchell B., & Wismer S., 2000). Desk research on environmental and natural resource development-related conflicts can help expose relevant legislation, collect case studies and information on how to mitigate and turn conflict situations into opportunities (Barrow, 2010). For a deeper understanding of the issues, future research should investigate the perceived and actual barriers, as well as opportunities, to including health and how health professionals can best engage in the EIA process. This should be supplemented by investigating the guidance and legislation used by EIA practitioners and regulators for the inclusion of health and health related concepts (Harris P.J., & Harris E., & Thompson S., & Harris-Roxas B., Kemp L., 2009).

5. Conclusion

For the first method; Refinery construction occurs in areas of the province that are deprived of land without cultivation or development of argument that supporters of this plan. Sponsors building more oil installations in Tehran, in rail transport facilities and road facilities suitable for the oil industry are considered in Tehran. Some opponents also suggest construction of oil facilities in Tehran should be responding to future generations. in this case Tehran oil refinery planning is going to be updated by Java software for EIA. However any change in the oil refinery project, future extending of oil refinery, population planning and environmental management plan can consider with this calculation giving by this method.

Environmental monitoring, oil refinery project (construction and operation) and social studies are coming into this developed software and provide a wide range of many items and indicators for each part of environmental and social studies and Tehran oil refinery technical managing for decision-makers. This software can develop for other refineries in future to make the better EIA of oil refineries.

For the second method; in this study four indicators have been evaluated with consideration of social and economical requirements for developing the study aims. Nowadays environmental and social studies with consideration of quantity method give the better results for decision-makers and for future planning on the environmental parameters and social action plan. This study can help oil refinery project area and responsible, environmental protection and social managing together.

In this method by evaluation of environmental and social indexes tried to give completely results for showing what is happening during the construction and operation of Tehran oil refinery. By developing of this method it also can use for other similar project in the field of oil industry.

6. Acknowledgment

As a prerequisite, Iranian oil industries and other related industries should address environmental needs. It is clear that a sustainable development would not be possible if environmental issues are not taken into consideration in development plans.

1-Try to provide a way for understanding the problem's between Oil Ministry, people and Environmental Protection Organization.

2-People all agree on the necessity to create an effective mechanism of interaction between the strategic and effective institutions in this area.

3-Agreements on the necessity for environmental strategies in oil and gas industries.

4-Determining the environmental strategies as prerequisites for oil and gas industries

5-Emphasis on creating strong and active centers for research and intellectual backgrounds for senior experts and managers

6-Scientific supervision and legal authority necessary for organizational and continuous monitoring of environmental strategies of oil and gas industries

7- Use the better software and methods (EIA oil refinery in Java, 3D methodology, Delphi) to provide the good results of EIA for oil refineries in Iran.

Corresponding Author:
Mohammad Rezaie Narimisa
Department of civil & structural engineering
University Kebangsaan Malaysia, 43600, Bangi, Malaysia
E-mail: mnarimisa@gmail.com

References

1. Ahmadi B, 2008. Social impact assessment in Iran, Tehran, azad publisher.
2. Assefa G., & Glaumann M., & Malmqvist T., & Kindembe B., & Hult M., Myhr U., Eriksson O., 2007. Environmental assessment of building properties—Where natural and social sciences meet: The case of EcoEffect, Journal of Building and Environment 42,1458–1464.
3. A.H.Becker, "Social impact assessment", European Journal of Operational Research, 128, 2001, pp. 311-321.
4. Barrow C.J.,2010. How is environmental conflict addressed by SIA?, Journal ofEnvironmental Impact Assessment Review, 30, 293–301.
5. Behzadie H., 2003. Socio-environmental impact assessment for oil refinery, Tehran, nioc publisher.
6. Ch. Benighaus, M. Hildé., and T. Assmuth, "Integrated risk assessment and risk governance as socio-political phenomena: A synthetic view of the challenges, Journal of Science of the Total Environment", STOTEN-11680, 2009, pp10-11.
7. Cloquell-Ballester V.G., Cloquell-Ballester V.A., Monterde-Dıaz R., Santamarina-Siurana M.C, 2006. Indicators validation for the improvement of environmental and social impact quantitative assessment Journal of Environmental Impact Assessment Review 26, 79– 105.
8. D. He, Y. Braun, and B. Tilt, "Social impacts of large dam projects: A comparison of international case studies and implications for best practice", Journal of Environmental Management, 90, 2009, pp. 249–257.
9. Davarie I., 2002. Socio-environmental impacts for oil industry, Tehran, nioc publisher.
10. Ehsanie J., 2001.Social impact assessment, Tehran, edalat publisher.
11. F. Vanclay, "Principles for social impact assessment: A critical comparison between the international and US documents", Journal of Environmental Impact Assessment Review, 26, 2006. pp. 3 – 14.
12. Farhadie R., 2004. Social impacts of oil refinery, Tehran, dana publisher.
13. Ghasemie M., 2001.Social impacts of oil industry, Tehran, saman publisher.
14. Harris P.J., & Harris E., & Thompson S., & Harris-Roxas B., Kemp L., 2009. Human health and wellbeing in environmental impact assessment in New South Wales, Australia: Auditing health impacts within environmental assessments of major projects, Journal of Environmental Impact Assessment Review, 29, 310–318.
15. Javaherie M., 2002.Social impacts of oil industry, Tehran, sahand publisher.
16. Kamali S., 2007.Social impact assessment for oil industry project, Tehran,, nioc publisher.
17. Lavasanie H., 1999.Social impacts of large project, Tehran, tavana publisher.
18. Mohamamadian T., 2005.Social impact assessment, Tehran, tahourie publisher.
19. Naserzadeh T., 2001. Sociology for oil industry, Tehran, rahnama publisher.
20. Paravar E., 2006. Sociology for projects in Iran, Tehran, kamal publisher.
21. Ramazanie S., 2003.Sociology for better future, Tehran, kohansal publisher.
22. Savadkouhie M., 2002.Sociology for projects, Tehran, kamyab publisher.
23. T. Webler, H. Kastenholz, and H Renn., "Public participation in impact assessment: A social learning spaces", Journal of Environ impact assess rev, 15, 1995, pp. 443-463.
24. Tavakolie N., 2007.Sociology for projects in future, Tehran, aram publisher.
25. Walker J.L., & Mitchell B., & Wismer S., 2000. Impacts during project anticipation in
26. Molas, Indonesia: Implications for social impact assessment, Journal of Environmental Impact Assessment Review, 20, 513–535.
27. Walker G., 2010. Environmental justice, impact assessment and the politics of knowledge: The implications of assessing the social distribution of environmental outcomes, Journal of Environmental Impact Assessment Review 30, 312–318.
28. Zoljalalian N., 2001.Sociology in oil industy in Iran: Using methods, Tehran, andisheh publisher.

12/6/2012