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The Analysis of Effects of Oil and Gas Industry Development on the Social Damage: A Case Study of Asalouyeh Region

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Highlights

- The United Nations' sustainable development goals (SDGs) underline the imperative for countries to advance key social development indicators, encompassing education, improved employment, poverty reduction, decent work, and social inclusion.
- Asalouyeh is one of the regions that has experienced many changes since the last two decades due to the development of the oil and gas industry.

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Abstract

This research was conducted to study the effects of oil and gas industry development on the state of social damage in the native community of Asalouyeh. This research was conducted using quantitative and qualitative methods; the in-depth interview method was used in the qualitative part, and in the quantitative part, survey and correlation research methods were used. The population of the current study was the native residents of Asalouyeh, 17 of whom participated in the qualitative part using the purposeful sampling method, and 380 people participated in the quantitative part using the random proportional classification sampling method. To collect data from the qualitative part, in-depth interviews were conducted with the participants, and the data from the quantitative part were collected using a semi-standard and researcher-made questionnaire. The results show that social impact analysis has increased significantly under the influence of the oil and gas industry entering the region. Most of the respondents stated that due to their dissatisfaction with their current living situation, they would move to change their place of residence if possible. The results of the quantitative analysis show that before the entry of the oil industry, the quality of life can explain the variance of the criterion variable, i.e., the state of social impact analysis, in a significant way to the extent of –20%.

Keywords: Asalouyeh, Industrial development, Oil and gas industry, Quality of life, Social damage.

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1. Introduction

The United Nations' sustainable development goals (SDGs) underline the imperative for countries to advance key social development indicators, encompassing education, improved employment, poverty reduction, decent work, and social inclusion. Education, human development, and gender equality are

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the leading social indicators that all the UN member states embraced in 2015 to ensure human well-being (United Nations, 2023). As a rising South Asian economy, Bangladesh has been collaborating with the UN and its partners to improve the scenario of these social developmental indicators (USAID, 2023). For instance, over the last three decades (1990–2020), secondary school enrollment has increased by 20%, the human development index has risen by 30%, and the gender inequality index has declined by 10%. However, Bangladesh's energy sector's development helps strengthen this change in social development indicators. More specifically, electrification, especially in terms of people's access to electricity, has become a key to the socioeconomic development of this economy. The development and implementation of industrial projects have always been associated with constructive and destructive effects and consequences on the natural environment, structure, and socio-cultural system, and they leave a deep impact on the local and indigenous communities around the industry (Kaiser, 2023:104). Although the development of the oil and gas industry in these oil-rich regions has at least contributed to the growth of some educational, welfare, and economic infrastructures and facilities, it has created problems for this area (Taheri et al., 2023:6). The surveys conducted in Iran's oil regions show the wide dimensions of social, economic, psychological, and environmental issues, which show the destructive effects and consequences of the industry in local communities. With the entry and development of the industry, environmental and social consequences also appear over time. As soon as the developing countries accept the technology of the Western countries, the social structures also change and are affected by this development. Attention to the assessment of environmental and social effects is widely needed by developing countries because due to the lack of economic development and the lack of suitable scientific and technical infrastructures, the development projects in these countries have a negative impact on the local social structure (Wang et al., 2023:8).

During the process of industrial development, one should not ignore the changes made in the local communities with indifference and ignore the community and the local people of the region whose development projects are located in the vicinity because industrial development can lead to social development by taking into account a series of conditions. On the other hand, the consequences of social development can in turn have a great impact on advancing the goals of development projects and even increase the economic profitability of the project. However, the situation is different in third-world countries. In these countries, industrial development has entered from the West in the form of a modernization process, and modernization as an alien phenomenon has come into conflict with the cultural background and traditional system of these societies. Since modern thoughts and ideas are formed around the modern capitalist economy, it can be said that the main root of the conflict between tradition and modernity in developing countries is also the conflict between the native socio-economic conditions of these societies and the underlying conditions of modern society (Speitmann, 2023:266). The entry of the industry, especially the oil industry in local communities, has caused many changes in the ecological structure of oil-rich areas, economic–social relations, and people's way of life and lifestyle (Dashtkar et al., 2021:289).

In the communities around these areas, the production and development of this industry have caused major stressful events, including air pollution, surface and underground water pollution, heavy vehicle traffic, noise pollution, accidents, and functional disorders, as well as psycho-social tensions caused by social changes (Boroumand and Panahi, 2023:60). Asalouyeh is one of the regions that has experienced many changes since the last two decades due to the development of the oil and gas industry. The decisions and activities of this huge industry have greatly influenced the host society (Kashanei et al., 2023:22). It is clear that in a very traditional and religious rural social environment such as Asalouyeh, where we have encountered so much industrial investment, social order can conflict with development. The development of the oil and gas industry in this region, centered on the organization of the Pars

Special Region, has completely transformed the economic, cultural, and anthropological landscape of this region. On the one hand, the migration of skilled and unskilled labors to this region has changed the cultural and demographic balance; on the other hand, along with the expansion of industrial, transportation, health, and medical infrastructures and urban facilities, it has caused the emergence of gaps (Hamidian et al., 2023:91). It has become major in the way of life and livelihood of the natives and how they interact with the immigrants and the surrounding environment. The way of life based on agriculture, fishing, and trade has given its place mainly to livelihood based on work in the industrial environment and the formation of marginal jobs related to it. The cultural conflict between the natives and the migrant workforce has caused social damage and a kind of chaotic transition and suspension between modernity and tradition.

A social (or interpersonal) problem is any social task, situation, or relationship—which can be understood to be in the past, present, or future—whose source is either the individual themselves or another person (or other people). A social problem generally prompts unpleasant and negative thoughts and feelings in the individual, which mostly, although not necessarily, stimulate the individual to take steps to resolve the situation, and/or mitigate or eliminate the negative thoughts and/or feelings so that they can experience effective social functioning, accommodate their environment optimally, and achieve their goals. Another very important issue which occurs not only as a local issue but also in the form of danger and threat at the national level is the severe environmental pollution caused by (the flaring of) the oil and gas industries and its damage to the health of residents. The region and environment of the country are in general condition.

In this research, the effects of oil and gas industry development on the state of social damage in the native community of Asalouyeh have been evaluated. This research seeks to discover the changes created among the natives of the region due to the establishment of the Pars (Asalouyeh) economic region. Therefore, the initial question of this research is what effect the development of the oil and gas industry has had on the state of social damage in the native community of the Asalouyeh special region.

2. Theoretical framework

To evaluate the effects of oil and gas industry development on social impact analysis in the local community of Asalouyeh, the theoretical framework of the present study is based on two key categories of industry development and social impact analysis.

1.2. Development

Although there is no single definition of development, most experts consider it a multi-dimensional process during which unfavorable life conditions are transformed into favorable conditions. Lack of attention to each of the dimensions of development can lead to moving away from the basic goals, increasing poverty and deprivations, spreading social anomalies and class differences, and ultimately leading to imbalance. In the meantime, the industry sector has a special place due to its great role and influence in the growth and development process of regions, especially urban regions that house a significant part of the population with different income levels (Jing and Wang, 2020:413).

Based on the country's industrial strategy in the third construction plan (import substitution strategy), the country's industries were concentrated and expanded in several regions of the country. The policies of the country's industrial system during the mentioned period were based on two axes: "encouraging large scale" and "choosing winners and supporting them". The aforementioned policies made large-scale units always benefit from various privileges and government support in the form of preferential credits, guaranteed (domestic) markets, and cheap and abundant currency; in the process of industrial development, in the light of the import substitution strategy, rural areas are provided with cheap labor,

capital, and inexpensive food supply for urban areas (Zikargae et al., 2022:259). According to the mentioned policies, the establishment of large and national industries in rural areas did not aim at industrializing the villages, but their creation in undeveloped areas was in line with industrial decentralization, adjustment, and reduction of regional inequalities, which always led to a transformation in the economic–social structure and physical–spatial and environmental changes. While many development experts justify the coexistence of industry with traditional village activities, many consider it unfavorable for the village and industry (Rajesh, 2023:3).

However, development has always been considered an increase in living standards in the form of an increase in income, which in turn means improving health and paying attention to nutrition, education, and personal freedoms; however, in most cases, industrial development has not led to social development; it has sometimes disrupted social security, destructed healthy social relations, created social damage, increased class gap, and led to inappropriate effects caused by the disruption of the economic order of the region in undesirable directions and discrimination against weak and marginal groups. Although the governments have tried to improve the relative status of the residents in the form of development programs, the evaluation results of the implementation of the development programs show that various models economically and socially used for the development have had no result other than intensifying the class gap and economic inequality (Singh, 2020:1780).

2.2. Social impact assessment

Social media have been identified as a popular transformational tool with many organizations transitioning from face-to-face interactions to social media interactions. To cope with the transition, for example, universities are providing faculty with the necessary support to help them as they undertake teaching, research, and service roles. The outbreak of the COVID-19 pandemic has also contributed to the extensive use of social media, which has created an irresistible urge for organizations to review their operations and actively adopt social media. Faculty have not been exempted from the use of social media, and its use among them has been on the rise. Consequently, the job performance of faculty might be expected to rely on the dimensions of social media use and social media types. Until a few decades ago, the main attention in development projects was usually focused on economic considerations. The prevailing view was that money can compensate for any negative effects of projects. Therefore, there was not much concern about the social consequences. In this view, paying attention to the local community and the neighborhood system was the least possible. Therefore, no attention was paid to social networks, which were the main foundations of providing support for people against hardships and stresses. One of the most important requirements and conditions for the implementation of development projects in many countries is that every organization, before taking any action (since this action will affect the quality of the human environment) and before doing anything, must evaluate the social consequences (Heydari et al., 2023:191).

The term social impact assessment was first used in the 1970s, but its guidelines and principles were formulated in 1994. If it is possible to include social impact assessment (SIA) in the decision-making process of real estate agents, then better decision-making can be made. The meaning of social impact is any impact that development projects leave on people's ways of life, work, social relations, and organization. In this context, we can also mention the change in the values, norms, and beliefs of the people. The social impact assessment can be defined as identifying, analyzing, and evaluating the social effects caused by a specific incident or event; in other words, it is a method to analyze what effects our human behavior will have on the social aspects of the environment. Therefore, the assessment of social effects is closely related to social changes (Walker and Curl, 2021:364). Nevertheless, the definition of the inter-organizational committee of strategies and principles of social impact analysis reveals many

aspects of this concept: The effort to evaluate and estimate the possible social consequences of certain actions and policies (including plans and policy implementation) and new projects and to implement certain government programs (including allocating large amounts of land to natural resource extraction projects) is called social impact analysis. In another version of the report published by the aforementioned committee, it is stated that social effects are any consequences resulting from the actions of the public and private sectors that affect the way of life, work, and communication, the way of satisfying the needs, and the type of domination of the people. It affects their life problems (Buchmayr et al., 2022:1022).

The need to evaluate the social impact is the result of recognizing the complexity of human societies and understanding that the negative and unwanted results of interventions may be heavier than their positive results. One of the main functions of social impact assessment is to predict the effects of defined types of changes on human communities. These predictions enable decision-makers to examine the advantages and benefits of alternative interventions (Zakaria et al., 2023:11)

Kaul (1999) calls the assessment of social consequences the assessment of favorable social conditions and states that the issue is not only to reduce the social consequences (negative social consequences of development strategies) but also to improve the responsiveness of policies to people's needs and increase social benefits. Social impact assessment has rightly emerged as a research field and methodology. In recent years, many studies have been conducted on the applications and methods of social impact assessment (Da Silva et al., 2021:517). This topic has been taught widely and often together with other scientific and professional courses and educational programs. Many consulting institutions offer social impact assessment in project preparation, implementation, monitoring, and evaluation. Project managers employ these institutions, skilled practitioners, and social scientists to prepare necessary social impact assessment reports before agreeing to a proposed new project.

First, the evaluation of social consequences was carried out as a part of the evaluation of environmental consequences. The social impact assessment was described as a planning tool and the result of a logical decision-making process, and it was expected that the analysis of more information during the planning stage would reduce doubts and consequences in the later stages of project construction and implementation. Today, social impact assessment is independent of environmental impact assessment. Although there are similarities between them, social impact assessment and environmental impact assessment are two different types of outcomes, and it is better to perform them separately. Meanwhile, as a concept that captures the relationship between technology and users, affordance has been applied in social media research as a key concept to examine perceived properties (e.g., features) of social media platforms that enable or constrain users' behaviors on the platform. Reddit is a pseudo-anonymous social media platform that allows its users to post candidly about sensitive topics without being afraid of social ramifications. Given the platform's openness, Redditors can freely post provocative topics they may otherwise not feel comfortable discussing in real life. Additionally, the Reddit platform is a space where formal rules and implicit social norms are developed within different sub-communities (subreddits) in which users create sub-cultures suited to their specific needs. The unique affordances, i.e., features of a social media platform that frame users' behavior of the Reddit platform such as pseudo-anonymity and subreddit communities, have created strong and sometimes unusual social norms that are not observed on other social media platforms; thus, this makes it an ample platform for researchers to study the novel social phenomenon, such as the emergence of potentially harmful social media challenges (Irarrazaval et al., 2023:44).

Masomi et al. (2022) indicated independent variables such as using mass media with coefficients (5 = 215 = 215), employing books and magazines (6/29/29), expertise and skills (3/07/07), good governance (6/6/65), environmental behaviors (4/4/44), willingness to participate (4/6/56), citizenship rights

(9/02/09), and leisure time (4/7/74). Thus, internal changes have predicted a variable of sustainable urban development, with economic factors playing the most important role. Hsu et al. (2021) investigated the impact of Taiwan's special action regarding forward-looking infrastructure on the development of rural industry. First, literature analysis and field survey methods were used to summarize the current situation of the site. Then, 420 questionnaires were collected for statistical confirmation analysis, combined with the interview method to understand the deepest feelings of the people, and finally discussed with the multi-inspection method. They believed that although environmental construction could improve infrastructure and the quality of human life, they were ultimately tested after completion if there was a good communication channel before construction: obtaining consensus from people and businesses, obtaining accurate information, water spraying to reduce dust, increasing the height of the perimeter fence, planning an alternative plan, avoiding crowds, reducing errors in the process, avoiding affecting the supply of water and electricity and the health of the of soil, water, and the environment. Also, it is not possible to plan for an alternative route and parking space with a damage subsidy, producing a negative image, thereby reducing people's willingness to spend due to the blocking of the view by the building (75%) and advertisement boards. It loses its function (63.2%), and inconvenience is caused by the movement line (75%) and parking space (55.9%), which are not useful for development. Lai et al. (2021) stated that there were many reports of catastrophic incidents in the oil and gas (O & G) industry, resulting in financial losses and huge risks for humans and the environment. Apart from primary operational (technical) risks, there are numerous non-technical risk factors such as workforce protection, climate change, ecosystems, biodiversity, health and safety, regulatory compliance, and other environmental and social issues. If left unaddressed, these risks can affect the green growth and resilience of O & G companies. This study presented a conceptual framework of how corporate sustainability practices coupled with risk management implementation to stimulate green growth in the O & G industry. The theoretical and conceptual framework presented based on the stakeholder theory proposed in this paper provides a foundation for the empirical validity of the intertwined relationship between the relevant variables. Measuring variables such as corporate sustainability performance, corporate risk management, and green growth are suggested to be extracted from previous research and frameworks and guidelines developed by prominent organizations.

Potravnaya (2021) studied the social problems caused by industrial development in the Arctic regions of Russia. This study considered the evaluation of the opinion of the population during the implementation of investment projects for the industrial development of the territory in Russia to identify priority social problems. It suggested conducting sociological surveys of the population during the life cycle of the projects. The database of this study was ethnological experts of alluvial diamond exploration and production projects in the Anbar and Olensky region of Sakha Republic (Yakutia) as well as sociological surveys of the population in the region. The framework was for assessing the consequences of the diesel fuel spill in Norilsk and the consequences of its impact on the Taimyr Dolgan-Nenets municipal district of the Krasnoyarsk region. Based on the surveys of the population, the study identified the social problems related to the industrial development of the territory and provided a comparative analysis of the social problems at different stages of the implementation of mining projects. In addition, the study addressed the low level of income of the population, the departure of young people, the decrease in the number of objects of traditional use, and the problems of preserving cultural traditions. It also concluded the relationship between social problems and suggested measures to reduce the consequences of identified social problems.

Mojarad (2021) evaluated the social aspects of sustainable development strategy in oil and gas companies in the Middle East. The purpose of this article was to highlight the issues in the

implementation of the concept of sustainability in the Middle East region. The analysis was conducted on the answers to a questionnaire with some specific questions related to this topic, which was completed by the employees and managers of some oil companies in this region. According to most respondents, the social aspect is not as important as the economic aspect. However, businesses have a different understanding of sustainability as well as its aspects such as social commitment. In this research, it was shown that the perception of social responsibility among organizations was different according to their size. Although business objectives and the business environment are also important, among those working in the Middle East oil and gas industry, the social aspect of sustainability appears to be more important to individuals in larger organizations than to those in smaller businesses. In addition, larger organizations, most of which have a dedicated department responsible for sustainability, seem to have more procedures for learning from different stakeholders and outside communities. These findings show the need for educational and perhaps more financial support for small organizations to better use their resources and fulfill their social obligations. Such support is better facilitated by governments, and the findings of this study can clarify this issue.

Koc and Teker (2019) investigated industrial revolutions on the quality of life. This study presented the historical views of the Industrial Revolution and analyzed the effects of the revolution on the quality of life. This research used a review and analytical approach to the historical developments of industrial revolutions in general. The findings showed that all industrial revolutions strongly affected people's quality of life. However, the development of industry had completely changed the way of life for every spectrum, e.g., jobs, governments, and people. Industrial development seemed to dominate the new order of competitiveness in the world. New jobs have been created that we never imagined 10 years ago. Most jobs are starting to disappear that we never thought about. Innovation activities and technological progress have a significant impact on international competition.

- Examining the most important aspects of the development of the oil and gas industry on the social life of the people;
- Assessing the effectiveness of the development of the oil and gas industry in improving or creating challenges in people's living conditions;
- The effects of the development of the oil and gas industry on the state of social damage.

3. Research methodology

According to the main purpose of this research, the main question of this study is "What effect did the development of the oil and gas industry have on the state of social impact analysis in the native community of Asalouyeh special region?" This research is a type of applied and strategic research. In the quantitative method section, survey techniques and questionnaire tools are used. The effect of the development of the oil and gas industry on the quality of life of native residents of Asalouyeh is used. The statistical population includes all people over the age of 18 in the two cities of Asalouyeh and Nakhl Taghi, as well as in the village of Bidkhon, selected by purposive sampling. The most important selection criteria for the selection of sample members in this research have been the knowledge and awareness of the people from the studied area. The mentioned people are actually among the members of the target community, that is, the native residents of Asalouyeh community, who have lived in this area for at least more than 30 years and witnessed changes; they have been selected since the sampling in this section was done according to theoretical saturation. Finally, interviews with 17 residents were the basis of the sample of the qualitative section.

To obtain reliable information in the qualitative phase of the research, in-depth interviews were conducted with the participants using the interview method. Standard and researcher-made questionnaires were used to measure variables and collect quantitative data.

The method of data analysis was performed quantitatively and qualitatively. The data of the qualitative part of the research were collected in the form of in-depth interviews and implemented in a textual form; finally, the main concepts and general categories were determined in the form of phrases. The data of the quantitative part of the research were analyzed using descriptive and inferential statistical methods such as correlation and regression.

In the quantitative part, considering the adequacy of sampling, to increase the external validity of the research, the sample size was calculated for the community of 61861 people, equal to 380 people using Krejcie and Morgan's table.

Based on Krejcie and Morgan's table, the selected sample size from the population of 61,861 people in the three selected regions was equal to 380 people, proportional to the population of each region, as well as the urban and rural population and gender segregation. In this research, data were collected by two methods of document review, including maps, field studies through visits, and documentation using maps. Further, using the questionnaire tool, the required data were collected in the form of interviews and inquiries. To collect questionnaire data, a five-point Likert scale was designed concerning the target range.

The quantitative part of the questionnaire has five parts in order; the first part includes the characteristics of the respondents, and the second part is the quality-of-life questionnaire; the third part is the access to welfare services, and the fourth part considers social harms; the fifth part includes the oil and gas industry.

3.1. Review of documents

This research used books, dissertations, articles published domestically and abroad, internet sites, official statistics, and similar research. Scientific research articles already available in the university libraries were also used. The studies and research that mentioned the field of the oil and gas industry and research indicators were also investigated herein.

3.2. Field surveys

Field surveys were conducted by collecting the necessary data through questionnaires and interviews. In addition, this research used face validity (content) to determine the validity of the measurement tool. Face validity means the degree of agreement between experts on an issue concerning an index or criterion; therefore, to ensure the validity of the present questionnaire using three criteria, the instrument's validity was evaluated and finally approved:

- The items and questions of the questionnaire were exactly the concepts and words used in previous similar research.
- The questionnaire was designed and compiled using the comments, instructions, revisions, and detailed corrections of the supervisors and advisors.
- The questionnaire was used in a preliminary study, and the opinions and suggestions of respected professors regarding the validity of the items and questions were included in the final formulation of the tool.

3.3. Reliability

This work used Cronbach's alpha coefficient to determine this ability, and more precisely, the internal consistency of the items to measure the concept and composite variable. The present questionnaire in a preliminary study (pilot) was given to 20 experts (social sciences, urban planning, geography, and urban planning) of the Asalouyeh local community, and after completing and compiling the questionnaire, Cronbach's alpha results for three main questionnaires, namely quality of life, access to welfare services, and social damages, were calculated; the obtained results are as follows.

Table 1

Cronbach's alpha coefficient of research questionnaire categories

Row	Category	Questionnaire number	Cronbach's alpha
1	Quality of life	26	0.834
2	Access to welfare services	18	0.845
3	Social impact analysis	7	0.862

4. Findings

4.1. Details of the respondents

In order to get to know the status of the research population and the appearance of the respondents, demographic questions are analyzed in the form of a questionnaire as follows: out of a total of 380 respondents to the survey plan, 279 are men, and 101 are women. The marital status of the respondents is as follows: 87 people are single, and 293 people are married. The age status of the respondents shows that the minimum age of the respondents is 18 years, and the maximum age is 60 years. The educational status of the respondents is as follows: the largest group of respondents has 31.8% of their education at the undergraduate level, and the second place is those with a diploma of 97 people. The employment status of the respondents shows that 126 people are self-employed, 70 people are employees, 57 people are housewives, and 34 people are unemployed. There are also 17 workers, 16 drivers, 16 cultural workers, 12 engineers, 9 students, 9 service workers, and 5 farmers. The highest income group of 238 people equal to 62.6 people are people who have a monthly income of 10 to 50 million Iranian Rials; Forty seven people earn between 110 and 150 million Iranian Rials per month. Moreover, 27 of the respondents stated that they do not have any income at the moment.

Table 2 shows the distribution of the state of social impact analysis; before the oil industry entered the region, 311 people, equal to 81.8%, evaluated the state of social impact analysis at a low and very low level; in contrast, only 21 people, equal to 5.5%, evaluated the level of satisfaction with the state of social impact analysis at a high and very high level. On the other hand, after the entry of the oil industry into the region, only 65 people, equal to 17.1%, evaluated the situation of social damage at a low and very low level, compared to 221 people, equal to 58.1%, evaluating the situation of social damage at a high and very high level. They have evaluated social damages. In general, the situation of social damages has increased with an average of 3.62 after the oil industry entered the region. The distribution of the state of social damage is presented below.

Table 3 lists the distribution of the positive impact of the oil and gas industry on reducing social impact analysis, while only 38 people, equal to 10% of the respondents, stated that the oil and gas industry has a low and very low impact on reducing their social impact analysis; on the other hand, at a high and very high level, 193 people, equal to 50.8%, evaluated this impact positively. At a more or less level, 101 people, equal to 26.6%, stated that the oil and gas industry has had a positive effect on reducing

social impact analysis. It should be noted that 48 people, equal to 10.3%, reported that the oil and gas industry has not had any positive effect on reducing social impact analysis. In general, most of the respondents at a higher-than-average level stated that the oil and gas industry has had a positive impact on reducing social impact analysis. The distribution of the positive impact of the oil and gas industry on reducing social impact analysis is presented below.

Table 2

Frequency distribution and percentage of answers to the question: investigating the status of social impact analysis.

	Before the arrival of the oil industry		**After the entry of the oil industry**	
	Abundance	Percentage	Abundance	Percentage
Very few	205	53.9	16	4.2
Few	106	27.9	49	12.9
Medium	48	12.6	94	24.7
Much	16	4.2	127	33.4
Very much	5	1.3	94	24.7
Total	380	100.0	380	100.00
Average score	1.71		3.62	

Table 3

Frequency distribution and percentage of answers to the question "To what extent has the oil and gas industry in the Asalouyeh region been able to reduce social damage?"

Abundance	**Percentage**	**Cumulative percentage**
13	3.4	3.4
25	6.6	10.0
101	26.6	36.6
106	27.9	64.5
87	22.9	87.4
48	12.6	100.0
380	100.0	

Table 4

Pearson's correlation coefficient between quality of life and social damage before the entry of the oil industry

Variable	**Average**	**Standard deviation**	**Correlation coefficient**	**Significance level**
Social damage	1.71	0.933	–0.200	0.000

The results of Pearson's correlation coefficient showed that, it can be stated with 95% confidence that there is a significant correlation between the quality of life and social impact analysis, and the value of the correlation coefficient between these two variables is –0.200, indicating that social damage decreases as the quality of life increases.

Table 5

Pearson's correlation coefficient between quality of life and social damage after the entry of the oil industry

Variable	**Average**	**Standard deviation**	**Correlation coefficient**	**Significance level**
Social damage	3.62	1.116	–0.083	0.107

Table 6

Simultaneous multiple regression analyses between predictor and criterion variables

Source of variance	Sum of square	*df*	Mean square	*F*	Significant level	*R*	*R* Square	Adjusted R^2	*SE*
Regression	13.272	1	13.272	15.832	0.000	0.200	0.400	0.038	0.916
Remainder	316.886	378	0.838						
Total	330.158	379							

Based on these results, the observed *F* value (15.832) is significant at a level of P ≥ 0.01, and 0.040% of the variance related to the state of social damage is explained by the quality of life (R^2 = 0.038), according to the significance of the regression. The prediction equation is presented in the below table.

Table 7

Coefficients of the equation for predicting access to services by quality of life before entering the oil industry

Model	Coefficients *B*	Standard error	Beta coefficients	*t*	Significance
Constant value		0.1450	2.256	15.559	0.000
The state of social damage	–0.200	0.4545	–0.179	–3.379	0.000

The regression coefficient of the quality of life as a predictor variable shows that the quality of life before the entry of the oil industry can significantly explain the variance of the criterion variable, i.e., the state of social damage, to the extent of –20%.

4.2. After entering the oil industry

To determine the impact of the quality of life after the introduction of the oil industry as a predictor variable with the state of social damage as a criterion variable, all the variables were included in the regression equation; Table 8 presents the obtained results.

Table 8

Simultaneous multiple regression analyses between predictor and criterion variables

Variance source	Sum of squares	*Df*	Mean square	*F*	Significance level	*R*	*R* Square	Adjusted R^2	*SE*
Regression	3.237	1	3.237	2.611	107.0	0.83	0.070	0.040	1.113
Remainder	486.669	378	1.240						
Total	471.905	379							

Based on these results, the observed *F* value (2.611) is not significant at a level of P ≥ 0.01, and 0.007% of the variance related to the state of social damage is explained by the quality of life (R^2 = 0.004); Table 9 lists the regression of the prediction equation.

Table 9

The coefficients of the equation for predicting the state of social damage by the quality of life after the entry of the oil industry

Model	Coefficients *B*	Standard error	Beta coefficients	*t*	Significance
Constant value	3.948	0.210		18.736	0.000
The state of social damage	–0.098	0.610	–0.083	–1.616	1.070

The regression coefficient of the quality of life as a predictor variable shows that the quality of life cannot significantly explain the variance of the criterion variable, i.e. the state of social damage, after the entry of the oil industry.

4.3. Analysis of the results

Before the entry of the oil industry into the region, 81.8% evaluated the situation of social damage at a low and very low level, and 5.5% at a high and very high level; nevertheless, after the entry of the oil industry into the region, only 17.1% evaluated the social damage situation at the level and very low level, and 58.1% evaluated it at a high and very high level. Generally, the state of social damage has become higher after the entry of the oil industry in the region (with an average of 3.62) than before the entry of the oil and gas industry (with an average of 1.71), implying that the social damage has increased after the entry of the oil and gas industry. These results are in line with the results of Potravnaya (2021) and Mojarad (2021). The results of the current research also showed that, before the entry of the industry, unemployment, addiction, theft, and other social impact analysis rarely existed in this sector, but they created an unbalanced development after the entry of the oil industry. The results of the qualitative interviews also showed that oil and gas have changed and created new social identities among the residents. The creation of cultural conflicts and the lack of proper training to prevent social impact analysis have caused negative effects in the region, and divorce, suicide, and addiction have been affected by the industry. The increase in the social discrimination and gap, the disruption of the cultural and social balance between the local community and the immigrants, and the creation of a sense of competition and mistrust between natives and non-natives have naturally increased addiction, hidden and open poverty, and prostitution. The only positive effect is the effect of reforming the patriarchal culture increasing the social participation of women and reducing unemployment. Further, the results obtained from the present study are in line with the study of Masomi et al., (2022) and Hsu et al. (2021), indicating that the sharp difference between the welfare facilities of different groups of society has created a gap and inequality, strengthening the feeling of discrimination and deprivation among the lower groups and strata of society.

5. Conclusions

The studies conducted by the International Institute for Energy Studies in areas with oil and gas resources show that since the location of projects is based on economic and political justifications, in some situations, the goals of the project may conflict with the socio-economic conditions of the local community, showing itself in the form of unexpected behavior of the parties: the project manager and the local community. Strong and uncoordinated quantitative growth along with highly heterogeneous qualitative development among countries and regions of the world has been prominent aspects of social and economic development in the last three decades. Despite their creation and expansion, the implementation of industrial plans and national projects that are carried out with specific political, economic, and military objectives, has caused many issues and problems in various directions of development of the sphere of influence. However, development has been considered an increase in living standards in the form of an increase in income, indicating improved health, attention to nutrition, education, and personal freedoms. However, in most cases, industrial development does not lead to social development, and sometimes it causes the disruption of social security, the destruction of healthy social relations, the creation of social damage, an increase in class gap, and inappropriate effects caused by the disruption of the economic order of the region in undesirable directions and discrimination against weak and marginal groups. Although governments have tried to improve the relative status of residents in the form of development programs, the results of the evaluation of the implementation of

development programs show that many varied models used for social and economic development have had no result other than the aggravation of the class gap and economic inequality.

After the entry of industry and several decades of implementation of industrial projects in the Asalouyeh region, which has caused tens of billions of dollars of capital to be spent in this region, the public infrastructure and general living conditions outside the residential settlements still remain undeveloped in some cases. In other words, despite the positive measures taken place, industrial development should contribute more to improving the lives of natives and creating public infrastructures. One of the consequences of the industrialization of local communities is to create employment opportunities, increase the income of residents, and improve infrastructure in the surrounding urban and rural areas, but the entry of industry may also have many social damages and environmental destructions. The economic and material consequences of the industry show themselves quickly, but the social consequences are revealed over time and gradually. Conducting social impact assessment studies that begin before project implementation and continue during and after implementation can be effective in preventing the occurrence of damage. In the studied area, the evaluation of the social effects of the oil and gas industry was not considered at first, and the present study has evaluated its effects: attention to the effects and consequences of the project in the post-implementation period. Although the experience of industrial development in Asalouyeh seems to be successful from the economic point of view, it is facing many difficulties from the social and cultural points of view. None of the ways of attracting participation have been used in this area, and the local people have not gained much for what they have lost; the industrial development is the reason for the theft. There is no poverty and deprivation in the region.

After the entry of industry and the disruption of the traditional order governing the local communities, various social impact analyses have occurred. The arrival of a mostly single and young population larger than the native population in the region has caused the atmosphere of the region to change; especially the two cities of Nakhl Taghi and Asalouyeh have lost their past peace. Most of the respondents were dissatisfied with the security situation. Robbery, addiction, conflicts, prostitution, and use of alcoholic beverages have caused many problems for the natives of the region after the entry of the industry. The security situation as one of the indicators of sustainable development in the Asalouyeh region is not satisfactory for the local natives.

The population and migration process after the entry of industry into the Asalouyeh region have undergone extensive changes, which has had various effects on local sustainable development. Since the facilities and infrastructure needed for such a population have not been prepared, the presence of this number of immigrants in the region has consequences. These immigrants, who came from other regions and even neighboring countries, brought with them various subcultures to the region and caused the traditional order ruling local communities to collapse. According to most of the respondents, they became more open to the Asalouyeh region, having a great impact on the young people of the region and spreading new customs and values among them that are not usually accepted by the families.

One of the important components of sustainable development is the reduction of poverty and the expansion of equality and social justice in society. To achieve this goal, facilities and opportunities must be equally available to the people, and the poor and disadvantaged should be helped with programs and processes to free them from these difficult conditions. Until the entry of the industry, according to the statements of most of the respondents, the income of the people was good on average; in fact, they were not a poor society in their own opinion. Further, because of the extensive social relations and religious motives, helping the poor was considered a value, receiving serious attention from the local rich people. In this situation, the gap between the rich and the poor and the feeling of inequality in the society are not very visible, and the above has become poorer because of inflation and the change of

conditions toward modern and urban life. The importance of wealth and material things has caused many of the previous social and support relationships to fade and caused the formation of a feeling of inequality between the poor groups. On the other hand, before the entry of the industry, due to the exclusion of the region, the level of expectation of the people was also low. Inside and outside the fence, they strongly feel inequality and discrimination.

Nomenclature

O & G	Oil and gas
SDGs	Sustainable development goals
SIA	Social impact assessment

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