

Research Paper: Effect of Menarid Plan on Rural Development (Case Study: Rezin Region, Iran)

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ABSTRACT

Purpose: Rural development programs worldwide place great importance on water and soil conservation, and the success of these programs rests heavily on practical cooperation between local communities and local authorities. Accordingly, the MENARID project was implemented to develop and protect rural soil and water resources as a combined plan in the Rezin region of Kermanshah province in Iran.

Methods: This study aimed to investigate the impact of the MENARID project on rural development in the studied area, which was conducted as a practical survey using a questionnaire. According to the Cochran formula, the sample size was up to 100 people through systematic random selection.

Results: Our results revealed that the MENARID project has significantly impacted the local economy and environment and expanded rural employment opportunities. In addition, this plan has led to an increase in rural women participating more in the community and producing local products. Moreover, factor analysis results showed that three components were effective: local infrastructure, empowerment, and indigenous participation in the MENARID project. The regression analysis also revealed that indigenous peoples' involvement was crucial to the MENARID project's success.

Conclusion: Our results revealed that the MENARID was successfully implemented. This project has improved the protection of water and soil resources. In addition, other results have been achieved, such as improving rural women's contribution, local economy, entrepreneurship development, job creation, and empowerment of women in an agrarian society.



1. Introduction

Several factors have led to the severe water crisis in Iran earlier than most countries

worldwide. These include limited freshwater resources and increased water consumption due to rising population, urban development, substandard groundwater extraction, inability to control surface water, increased

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water pollution due to the release of domestic and industrial wastewater, and spatial and temporal dispersion of water. Furthermore, climate change and the lack of a long-term water management plan exacerbate this crisis (Zarepour Joynani, 2013: 5).

There is a significant relationship between environmental issues with development requirements and methods of natural resource utilization in Iran (Yazdani Moghadam, 2013: 16). Integrated natural resource management is a new concept in this country, where most activities have focused on sectoral management for many years. Therefore, there has been little or no coordination between organizations and ministries responsible for resource management and utilization. The MENARID Project was approved under the Middle East and North Africa Countries Development Program in seven countries, including Jordan, Algeria, Tunisia, Morocco, Yemen, and Iran. This project aimed to curb land and water degradation and support sustainable and alternative livelihood methods at the local community level. The MENARID project in Iran entitled “Institutional strengthening and coherence for integrated natural resource management”. (Forests, Rangeland, and Natural Resources Organization of the country, 2013: 15).

The MENARID project has concentrated on Sistan and Baluchistan, Kermanshah, and Yazd provinces. This project also supported the implementation of the Sustainable Management of Water and Land Resources (Habla Rood) as pilot projects in Semnan and Tehran provinces (National Network of Charitable Institutions, 2022: 2).

MENARID project was well planned and implemented with the support of the local community in Rezin region of Kermanshah Province. Thus, it can be served as a model worldwide. Providing an overview of the mentioned project can help identify its characteristics and impacts on rural communities. Hence, this study aimed to investigate the impact of the MENARID project on rural development in the Rezin region of Kermanshah province as a case study.

2. Literature Review

Noorbakhsh and Salehi (2021) published a paper entitled “Analysis of entrepreneurial competencies of rural women targeted by MENARID Project in Kermanshah.” They noted that the entrepreneurial competencies of the studied women were organized around three major themes: environmental, individual, and resource acquisition skills, each with other organizing and foundational themes.

Dadkani et al. (2017) in a study titled “Role of MENARID Project in improving the economic situation in rural areas; case study: Hamunshahr-Sistan” found that the MENARID Project highly affected the economic livelihood of villagers, as members of development groups in most areas; who are relatively satisfied. In addition, this project has created favourable conditions for most economic development indicators, which is the basis for sustainable employment in these villages.

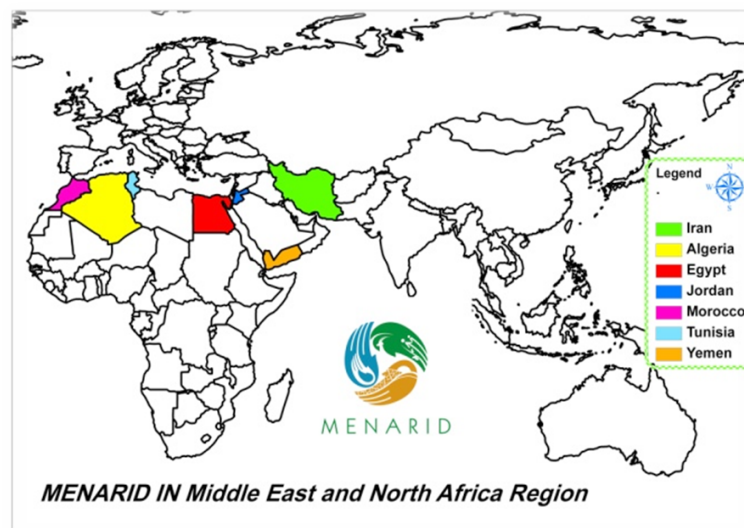


Figure 1. MENARID Project in the World. Source: UNDP, 2022

Similarly, in a study titled “MENARID as an effective model for comprehensive management of the watershed,” Bahrami et al. (2015) stated that the MENARID international project aims to alleviate poverty and create jobs to reduce dependence on water and soil resources. This project was carried out in four watersheds of Chaharmahal and Bakhtiari provinces, including Manj-Bidleh, Chalanter, Dorahan-Solegan, and Hossein Abad Bazfat. The results have shown that comprehensive management of the watershed requires not only greater coordination and coherence among government institutions and organizations but also explains the participatory thinking of watershed residents at different levels of society and decision-making bodies.

Similarly, Behzad Far et al. (2015) published a paper titled “Reviewing the application of brainstorming technique in capacity building of local communities; Case study: MENARID International Project of North Khorasan Province”. They documented that the brainstorming technique is consistent with the results of TOPSIS method and found that it is approved as an efficient method for capturing local people’s opinions and building their capacity.

Fuladiyan et al. (2015), in an article titled “Effect of MENARID project in empowering and attracting the participation of rural women; Case study: Kemkoviye village, Bahabad city in Yazd province” explained that credit funds play a key role in empowerment. They also found that attending training courses and knowing the goals and benefits of the project is critical in women’s participation. Overall, it can be argued that the MENARID project has strengthened women’s empowerment in the region under study.

Eskandari Nesab et al. (2015) published a study titled “Reviewing the strengths, weaknesses, opportunities, and threats of MENARID project implementation in Yazd province” and found many strengths and weaknesses in the region under study. Therefore, it is possible to leverage the associated strengths in improving rural households’ livelihoods and promoting these areas’ sustainable development. Thus, different solutions tailored to the MENARID project can be provided to address the obstacles and damages.

Tamimi and Rahmani (2014) published a paper titled “the role of MENARID international project on sustainable management of water resources and its implementation consequences (Case study: Akhizarzin area, Kermanshah province)”. They concluded that although this project is highly capable of managing sustainable

rural development, several factors hinder the successful implementation of the project, such as lack of social capital, low participation, and lack of trust between the executors and the local population.

Afshari et al. (2013) published a study titled “Effects of sustainable economic-social development of MENARID international project in Sistan area”. They used SPSS software and found that economic indicators including livelihood and income at a low level, employment and investment at a medium level and social indicators such as health and amenities at a high level, and literacy, education, immigration and participation at a medium level had a positive and significant impact.

Ajarlou et al. (2013), in a paper entitled “Evaluation of some economic, social, and cultural aspects of the MENARID Project in Sistan,” investigated the inhabitants of Kikha and Boland villages and found that the MENARID Project was managed successfully in the three areas under study. In contrast, the project performed poorly in the villages of Sencholi and Pudina.

Bagheri Fahrji et al. (2013) reported an article entitled “Challenges of integrated management of natural resources in MENARID international project in Bahabad area”. They stated that there are several drawbacks to implementing this international project, including the Regulatory agencies responsible for natural resources, sectionalism, budgeting system, monitoring and lack of specific strategy in implementing natural resource-related projects. Karimi Zarchi and Delavaripour (2013), in a paper titled “Culture, the infrastructure of planning for sustainable development (Case study: MENARID International Project)” stated that culture is considered the infrastructure of regional planning for sustainable development. In other words, the methods of indigenization in sustainable development are a necessary and indisputable matter because human societies behave towards a new phenomenon (e.g. sustainable development) according to the society’s culture. Since cultures differ even in ethnic dimensions, the feedback will also differ.

3. Methodology

The current study is a practical, quantitative, and survey-type research and uses a questionnaire to collect data. Rezin village’s households, consisting of 436 households, were included. According to the Cochran formula, 100 households were selected as the sample using the systematic random sampling method. Cronbach’s alpha determined the reliability of the survey with an average value of 0.77. Expert opinions con-

firmed validity. The input tests were mean, percentage, factor analysis, correlation, and regression. All data were analyzed using SPSS software.

Study Area

Rezin village is located in Posht Darband district in the central part of Kermanshah city in Kermanshah province, Iran. According to the Statistical Center of Iran (SCI) in 2013, the population of this village was 1846 people (436 households). Rezin belongs to Bilwar district of Kermanshah province, the most populous village in the region with about 1000 inhabitants. Geographically, it is located approximately 70 km from Kermanshah. Although Rezin village has a long history, the old structure of the town is increasingly being destroyed, and new buildings are being constructed. About 80% of the village's inhabitants are engaged in agriculture (Statistical Center of Iran, 2021).

Theoretical basis

The MENARID project aims mainly to stabilize and increase the resilience of local communities. It was carried out in seven countries, including Jordan, Algeria, Iran, Tunisia, Morocco, Egypt, and Yemen, as part of the Sustainable and Integrated Development of the Middle East and North Africa Program. Several organizations in Iran have been working on this project since September 2010 as government representatives. These include the Global Environment Facility, the United Nations Development Program, and Iran's Forestry, Rangelands, and Watersheds Organization. The ultimate goal of this project is not only to develop integrated renewable natural resource management for compatibility with climatic conditions and the benefits of the global environment but

also to protect the ability of ecosystems to support the livelihood of local populations. Therefore, MENARID collaborates and actively participates with other projects in the country. In this regard, this study aimed to investigate the role of resilience against climate change on food security in rural households of Yazd province to evaluate some of the achievements of MENARID plan (Bagheri Fahrji et al., 2013: 349).

The MENARID Project in Iran requires unique, and integrated natural resource management planning focused on organizational strengthening to achieve environmental, economic, and social development goals. Collaboration and cross-sector dialogue are essential for water and land resource management, which is particularly noteworthy in light of the development dynamics and difficult issues in all studied areas and related activities. Nevertheless, executive focus and project management may also be added in some items, such as risk identification and management, resilience, and climate change adaptive capacity. The planning process, especially at the local community level, should continuously include a dynamic and comprehensive analytical flow of risks from the economic, social, and environmental perspectives (MRNI) for integrated natural resource management activities. Risk assessment requires a shift in the conceptual understanding of project management from sustainable to resilient livelihoods in a dynamic and changing landscape along with a climate change approach. In other words, to achieve the expected objectives of the project, risk assessment and risk management instructions should be included in the supporting activities of project management as part of this change of perspective (UNDP, 2022). Some of the proposed theories are mentioned as follows:

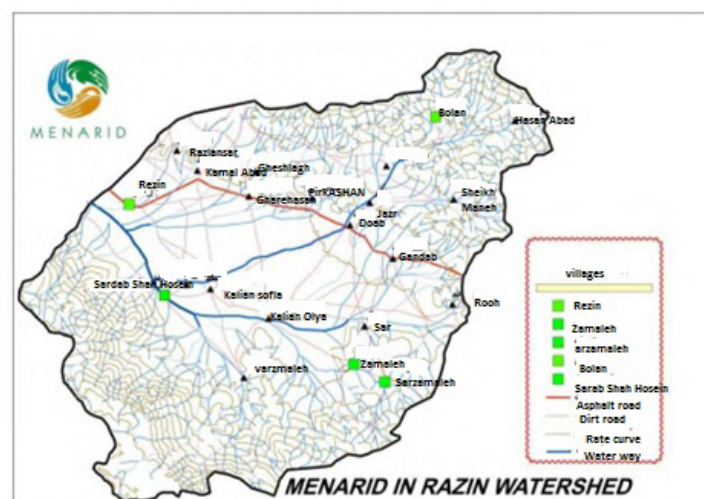


Figure 2. Study area

Capacity building: MENARID can be supported by nongovernmental organizations in capacity building and other social concerns. The project can also work with civil institutions to address prevailing problems related to environmental, economic, and social issues at the national and provincial levels. Moreover, this project can provide grants to nongovernmental organizations and civil institutions to empower and strengthen their capacity, to engage constructively and interact effectively with government (as often failures are associated with ineffective interaction) (Forests, Rangeland, and Natural Resources Organization of the country, 2013: 42).

Sustainable development: This concept focuses mainly on the preservation of capital (human, natural, social, and economic) resources to maintain intergenerational equity. Sustainable development is realized when the ecological, economic, and social levels overlap. This means that each of the mentioned systems and subsystems should achieve an optimal level of sustainability to be evaluated. Therefore, sustainable rural development is a comprehensive and sustainable process that can increase and improve the rural communities' capacities to meet material and spiritual needs and balance the different components of the local settlement system including ecological, social, economic, and institutional structures. According to the definition of sustainability and sustainable development, the balance between the dimensions of sustainability, i.e., the environmental, social, institutional, and economic dimensions, are critical components in rural development. Natural sustainability can be defined as living in rural communities within the limits and capacities of the ecosystem to protect sustainable resources and the continuity of rural life. Socio-cultural sustainability, the improvement of the quality of life, the development of human resources, and finally, the self-reliance of local communities serve to address internal and external challenges and to preserve values and cultural heritage.

Furthermore, economic stability means strengthening the economic foundations in rural areas and achieving economic security. By creating stable affairs, profitable jobs, and undeniable financial resources, and eventually, by using appropriate technology compatible with the environment, the plan aims to achieve a sustainable economic environment. By contrast, political and institutional stability entails empowering individuals to be involved in issues affecting them and organizing groups and institutions to manage development (Azimi Ameli & Rokanuddin Iftikhari, 2013: 255-255).

Conflict management among stakeholders: Superficial assessments of the stakeholders involved in the project and their inadequate handling of expectations can cause many obstacles in the implementation of projects. These behaviours lead to ignoring the social constraints and attitudes of the local community and paying more attention to influential groups. Consequently, this leads to various problems and damages national and regional projects economically and socially (Talebian & Omrani Majd, 2006).

Community-oriented ideas: Civil society and nongovernmental organizations, as beneficiaries of the project, play a key role in raising awareness of INRM's integrated natural resource management, and building capacity for well-being, sustainable resources, ecology, and environmental management. The project document has highlighted that civil society/nongovernmental organizations contribute significantly to raising awareness and local capacity building for integrated natural resource management (INRM) (Forests, Rangelands and Natural Resources Organization of Iran, 2013: 41).

Empowerment: MENARID is prioritized for communicating with and mobilizing all stakeholders (including local communities). Hence, this project cooperates with various decision-making, research, and nongovernmental organizations. Implementation activities (e.g., site visits and training programs) and information mechanisms (e.g., collaboration with local media and documentation) have also significantly improved awareness and knowledge among target groups. Moreover, MENARID project has taken successful actions regarding institutional and organizational management of sustainable natural resources at the national, provincial, and local levels in the target areas. This project has also collected basic information and identified the priorities and main needs of the local population so that various projects such as natural resource management, water management, job creation, awareness raising, etc., can be restricted and implemented according to the local population's demand. Moreover, this project has strengthened the contributions of women to collaborative activities. Ultimately, it aims to transfer the achievements and benefits of the local and provincial levels to the national level. Further, it provides an appropriate model to develop a national program for integrated natural resource management. This model will emphasize collaborative solutions at all levels and benefit from the capacity of local communities and nongovernmental organizations in planning and implementing projects (National Network of Charitable Institutions, 2022: 2).

4. Findings

First, factor analysis was performed to categorize the variables. The k.m.o coefficient was 0.73, and Bartlett's

test was significant (at 0.0). Exploratory factor analysis of principal components and varimax rotation was used. Accordingly, the variables are divided into three categories.

Table 1. Research variables together with factor load

No	Items	Component 1	Component 2	Component 3
1	How successful was the implementation of Manarid project in Rezin village?			0.099
2	How much does people's participation in the implementation of Manarid project contribute to the success of this project?			0.068
3	How much do the people of Rezin village consider themselves obliged to implement this project?		0.71	
4	To what extent has the implementation of Manarid project played a role in empowering the people of this village?		0.70	
5	To what extent has the implementation of Manarid project been able to help the local people of this village to protect water and soil?			0.147
6	How much did the members of the councils and village councils play a role in the successful implementation of this project?	0.048		
7	To what extent has the people's acceptance of the Manarid project been implemented?		0.70	
8	To what extent did the university education of the youth of Rezin village play a role in the successful implementation of this project?	0.71		
9	To what extent has the implementation of Manarid project provided employment opportunities for women?			0.74
10	How much has the implementation of the Manarid project in the village of Rezin, considering the participation of women in the decision-making of the village, made a significant change in the livelihood of the households in terms of economy?			0.87
11	How well has the Manarid project been implemented in line with the goals of sustainable development?	0.73		
12	How much did the local culture of the people of this village play a role in the successful implementation of the project?	0.89		
13	To what extent has the implementation of Manarid project reduced rural poverty?		0.076	
14	To what extent has the implementation of this project resulted in the integration of land in Rezin village?			0.207
15	How much has the implementation of Manarid project reduced migration to cities?			0.139
16	To what extent has the implementation of the Manarid project raised the spirit of entrepreneurship among the residents of this village?			0.687
17	Has the lack of trust of the villagers in the implementing agents of this project hindered the implementation of this project?			0.088
18	To what extent have the authorities justified the local people to implement this project?			0.073
19	How much has the implementation of Manarid project helped the local people to market organic products?		0.767	
20	To what extent has the implementation of the Manarid project resulted in the production and sale of handicrafts?		0.843	
21	How much has the implementation of Manarid project affected the local economy?	0.870		
22	How much has the implementation of Manarid project affected the environment of the region?		0.668	
23	How much has the implementation of Manarid project affected the agriculture of the region?		0.098	

Table 1. Research variables together with factor load

No	Items	Component 1	Component 2	Component 3
24	How much has the implementation of Manarid project affected the income of the villagers?		0.308	
25	How much has the implementation of Manarid project affected the rural infrastructure?	0.053		
26	How much has the Manarid project affected people's awareness of natural resources?			0.824
27	How effective have the trainings given to the people been in helping the people in the Manarid project?	0.040		
28	How much do you agree with the implementation of Manarid project?			0.091
29	How successful do you consider the implementation of the Menarid project?	0.095		
30	How successful has been the performance of officials in Manarid project		0.091	



Next, the components were weighted. Table 2 displays that the three components including education and local management, empowerment, and participation of local people, influenced the MENARID project execution.

The components are examined here.

A- Local infrastructures

Table 3 demonstrates that this project has led to sustainable development in Rezin village. Rural infrastructure and the local economy have also been significantly improved.

Table 2. Extracted components

Component	Weight
Local infrastructures	11.073
Indigenous people's empowerment	8.522
Participation of indigenous people	6.805



Table 3. Local infrastructures

No	Items	Very low	Low	Moderate	High	Very high	average	attitude
1	To what extent did the university education of the youth of Rezin village play a role in the successful implementation of this project?	13	13	22	32	16	3.04	High
2	To what extent has the implementation of the Manarid project been implemented in line with the goals of sustainable development?	3	7	51	19	18	3.42	high
3	How much did the local culture of the people of this village play a role in the successful implementation of the project?	5	22	32	2	18	3.30	High
4	How much has the implementation of Manarid project affected the local economy?	5	19	42	14	18	3.21	High
5	How much has the implementation of Manarid project affected the rural infrastructure?	3	20	42	22	12	3.20	High
6	How effective have the trainings given to the people been in informing the people about the Manarid project?	8	9	41	22	19	3.35	High
7	How successful do you consider the implementation of the Menarid project?	8	22	47	17	6	2.91	High
	Total						3.20	high



B- Empowerment of the indigenous population

This project improved handicrafts and local product sales increased organic product production and enhanced the cooperation between people and authorities (Table 4). Overall, it can be argued that this project empowered the local people.

C- Participation of indigenous people

Table 5 revealed that this project has resulted in better participation of women, entrepreneurship development and more trust among local people. Local people's involvement is one of these project outcomes in the Rezin village.

Table 6 shows a significant relationship between local infrastructure, empowerment of local people, and participation in the successful implementation of the project. In other words, the MENARID project execution depends on these three variables. The better the infrastructure, the greater the participation, and the rural population will be empowered, and the MENARID project will be more successful.

The regression results showed that indigenous participation plays the most significant role in successfully implementing the MENARID project. Local infrastructure and empowerment of the local population come next (Table 7).

Table 4. Empowerment of indigenous people

No	Items	Very low	Low	Moderate	High	Very high	average	attitude
1	How much do the people of Rezin village consider themselves obliged to implement this project?	11	28	31	19	9	2.86	high
2	To what extent has the implementation of Manarid project played a role in empowering the people of this village?	3	25	40	17	15	3.16	High
3	To what extent has the people's acceptance of the Manarid project been implemented?	16	17	39	16	11	2.88	High
4	To what extent has the implementation of Manarid project reduced rural poverty?	2	16	29	20	30	3.39	High
5	How much has the implementation of Manarid project helped the local people to market organic products?	7	15	32	20	23	3.38	High
6	To what extent has the implementation of the Manarid project resulted in the production and sale of handicrafts?	6	10	35	24	24	3.50	High
7	How much has the implementation of Manarid project affected the environment of the region?	9	24	36	16	12	2.97	High
8	How much has the implementation of Manarid project affected the agriculture of the region?	12	21	33	21	11	2.97	High
9	How much has the implementation of Manarid project affected the income of the villagers?	6	17	36	23	17	3.28	High
10	How successful has been the performance of officials in Manarid project	1	12	36	34	14	4.02	High
Total							3.58	high

Table 5. Participation of indigenous people

No	Items	Very low	Low	Moderate	High	Very high	Average	Attitude
1	How successful was the implementation of Menarid project in Rezin village?	3	14	44	13	25	3.43	High
2	How much does people's participation in the implementation of Menarid project contribute to the success of this project?	4	29	34	22	9	3.03	High
3	To what extent has the implementation of Manarid project been able to help the local people of this village to protect water and soil?	14	22	27	21	16	3.03	High
4	To what extent has the implementation of Manarid project provided employment opportunities for women?	7	7	23	22	39	3.80	High
5	How much has the implementation of the Manarid project in the village of Rezin, considering the participation of women in the decision-making of the village, made a significant change in the livelihood of the households in terms of economy?	7	13	28	24	27	3.51	High
6	To what extent has the implementation of this project resulted in the integration of land in Rezin village?	4	19	28	21	25	3.45	High
7	How much has the implementation of Manarid project reduced migration to cities?	10	14	32	17	25	3.33	High
8	To what extent has the implementation of the Manarid project raised the spirit of entrepreneurship among the residents of this village?	5	11	38	27	15	3.37	High
9	Has the lack of trust of the villagers in the implementing agents of this project hindered the implementation of this project?	17	16	29	24	14	3.02	High
10	To what extent have the authorities justified the local people to implement this project?	11	18	32	19	18	3.02	High
11	How much has the Manarid project affected people's awareness of natural resources?	4	16	41	22	14	3.44	High
12	How much do you agree with the implementation of Manarid project?	4	20	26	8	42	4.12	High
Total							3.37	High



Table 6. Correlation between variables

Dependent variable	Independent variable	Correlation	Significance
Local infrastructures	Successful project implementation	0.49	0.0
Indigenous people's empowerment		0.23	0.021
Participation of indigenous people		0.33	0.0



Table 7. Regression

Independent variable	B	β
Fixed coefficient	4.39	
Local infrastructure	0.24	0.026
Empowerment of indigenous people	0.082	0.009
participation	0.95	0.099

$$Y=4.39+0.24x_1+0.082x_2+0.95x_3$$



5. Discussion

Our results revealed that the MENARID was successfully implemented. This project has improved the protection of water and soil resources. In addition, other results have been achieved, such as improving rural women's contribution, local economy, entrepreneurship development, job creation, and empowerment of women in an agrarian society. MENARID has also been found to positively impact the village environment, reducing migration to villages, empowering local people, and bringing more attention to rural infrastructure. Moreover, this project has led to greater participation of the local population and more cooperation among people and with the authorities. Overall, as mentioned above, it can be concluded that the three components play an influential role in the successful implementation of the project. Most importantly, the participation variable has the most significant impact on improving the performance of the MENARID plan.

Our results are consistent with [Noorbakhsh and Salehi \(2021\)](#), who stated that the entrepreneurial skills of the women studied played a vital role in the project's success. Similarly, [Dadkani et al. \(2017\)](#) found that the MENARID project highly affected the economic livelihoods of villagers who are members of development groups; consequently, people are relatively satisfied. Our findings are consistent with those of [Bahrami et al. \(2015\)](#), who noted that the MENARID international project was successfully implemented, aiming at poverty alleviation and job creation. The findings of [Behzad Far et al. \(2015\)](#) revealed that their study has considerably affected the capacity building and empowerment of the local population. In the same vein, the importance of women's contribution and entrepreneurship in implementing MENARID was highlighted ([Fuladiyan et al. 2015](#)).

Moreover, [Eskandari Nesab et al. \(2015\)](#) argued that the project has improved rural households living conditions and sustainable development. Similar to [Tamimi and Rahmani \(2014\)](#), our findings highlighted that the main obstacle to the successful implementation of the project was the lack of social capital. [Afshari et al. \(2013\)](#) also believe that MENARID project can improve two factors employment and migration. Likewise, Also, [Ajarlou et al. \(2013\)](#) proposed the successful implementation of this project. [Bagheri Fahrji et al. \(2013\)](#) reported similar results and emphasized the project's positive impact on natural resources. [Karimi Zarchi and Delavaripour \(2013\)](#) also pointed out the positive cultural impacts of the project in the village.

We, recommend the following:

- According to respondents, there is a low level of trust in the officials in charge of project implementation, which requires a high level of trust-building.
- Marketing is one of the ignored components of this project; Hence, a proper plan should be developed to promote and market the products produced by the villagers.
- This study has confirmed that tertiary education is critical to the project's success. Therefore, there is concern that people with low education may have potential negative impacts on the project. These influences should be identified so that they can be addressed appropriately.

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Conflict of Interest

The authors declared no conflicts of interest.

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